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REBUTTAL TESTIMONY OF

JAN 24 2005

DAVID J. RUMOLO

DOCKETED BY

KA

On Behalf of Arizona Public Service Company

Docket No. E-01345A-03-0775

Docket No. E-01345A-04-0657

JANUARY 24, 2005

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14
15
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18
19
20
21
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23
24
25
26

Table of Contents

I.	INTRODUCTION	2
II.	SUMMARY OF TESTIMONY	3
III.	BWG REPORT	3

1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
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**REBUTTAL TESTIMONY OF
DAVID J. RUMOLO
ON BEHALF OF ARIZONA PUBLIC SERVICE COMPANY**

I. INTRODUCTION

Q. **PLEASE STATE YOUR NAME AND BUSINESS ADDRESS.**

A. My name is David J. Rumolo, and my business address is 400 North Fifth Street, Phoenix, Az 85004.

Q. **HAVE YOU PREVIOUSLY FILED TESTIMONY IN THIS DOCKET?**

A. Yes, I filed direct testimony on November 23, 2004. That testimony described the bill estimating procedures used by APS in recent years and provided analyses that compared revenue levels under alternative bill estimation procedures.

Q. **WHAT IS THE PURPOSE OF YOUR REBUTTAL TESTIMONY?**

A. My testimony provides comments regarding the interim report prepared by Staff's consultant, Barrington-Wellesley Group, Inc. ("BWG Report") as part of the Staff Inquiry into the Usage Estimation, Meter Reading and Billing Practices of APS. Specifically, my testimony focuses on the bill estimation and auditing aspects of the BWG Report. In that regard, I have specific comments regarding several of the recommendations contained therein. APS Witness Tammy McLeod's rebuttal testimony addresses the meter reading and customer service aspects of the BWG Report.

1 II. SUMMARY OF TESTIMONY

2 Q. **PLEASE SUMMARIZE YOUR REBUTTAL TESTIMONY.**

3 A. The BWG Report does not give the Commission a complete and, in some
4 instances, accurate picture of the Company's meter reading and billing practices.
5 In other instances, it focuses on long past events that were well known to the
6 Commission at the time. Its recommendations ignore much of the Company's
7 requests in the Application, neither supporting nor opposing them. Finally, its
8 recommendations, as they would impact the estimation of customer usage and
9 demand, would increase the net under-billing already flowing to the group of
10 customers receiving bills based on estimated meter readings, many of whom
11 create the very conditions that require their bills to be estimated.
12

13
14 III. BWG REPORT

15 Q. **DO YOU BELIEVE THAT THE BWG REPORT PROVIDES A FAIR**
16 **ASSESSMENT OF THE METER READING AND BILL ESTIMATION**
PRACTICES OF APS?

17 A. No, I do not. Although I believe that the BWG Report provides some valuable
18 information supporting our contention that APS' metering, billing, and bill
19 estimation practices are reasonable, I also believe that some of the information
20 that is presented in the report, especially in the summaries, can, if taken out of
21 context, lead to erroneous conclusions. Moreover, I believe that the BWG
22 Report misinterprets or mischaracterizes much of the information made
23 available to BWG by APS, and thereby leaves in many instances the
24 misimpression that APS' practices are different than they actually are or that
25 historical practices (some of which occurred five or six years ago) are indicative
26 of APS' current practices.

1 **Q. PLEASE CITE AN EXAMPLE OF YOUR CONCERN.**

2 A. On page I-9 of the BWG Report, the question is presented, "Are APS' usage
3 estimation, meter reading, and billing practices consistent with those of other
4 Arizona electric utilities?" The report's response is "No, APS' practices for
5 estimating both kWh and kW vary from those practices in place at other electric
6 utilities in the State of Arizona". While that statement is literally accurate, it is
7 grossly misleading. The report reader is left to review the back up material,
8 namely Appendix C, to find out that virtually none of the Arizona utilities use
9 the same method for estimating kWh, and, to the extent that these other Arizona
10 utilities estimate kW at all, each utility does it a different way. Thus, the
11 statement in the BWG Report that APS' estimating practices are not consistent
12 with the practices of other Arizona utilities is equally true of all Arizona utilities
13 that BWG surveyed and therefore, in my view, is both a meaningless statement
14 and highly misleading. Similarly, the BWG Report notes that APS uses a six
15 month seasonal average to estimate consumption (kWh), which it contends is
16 not consistent with the practices of other Arizona utilities. Again, the reader
17 must examine Appendix C to discover that some Arizona utilities use one month
18 (either the previous month or the same month last year), some use two, three or
19 four months, and one utility uses five months. Thus, here again, the BWG
20 Report suggests that there is some established standard for estimating kWh
21 among other Arizona electric utilities from which APS deviates, when in fact
22 there is no consistent standard.

23
24 **Q. DO YOU CONCUR WITH BWG'S APPARENT CONCLUSION THAT**
25 **APS' ESTIMATION METHODS ARE CONTRARY TO THE**
26 **REQUIREMENTS ESTABLISHED IN THE COMMISSION'S RULES?**

A. No.

1 Q. WHY DO YOU BELIEVE THAT APS' BILL ESTIMATION
2 METHODOLOGIES ARE FULLY CONSISTENT WITH THE
3 APPLICABLE PORTIONS OF RULE 210?

4 A. First, Rule 210 describes a methodology for estimating consumption, i.e.,
5 energy. It does not address methodologies for estimating demand. Second, the
6 rule merely indicates the two factors which should be given consideration. The
7 rule does not indicate that the two factors should be the only factors used.

8 Yet, BWG's seeming interpretation of R14-2-210.A.2 is that the Commission's
9 rule allows one and only one estimation methodology, i.e., consumption
10 estimates be based solely on the previous month and the same month previous
11 year. This narrow interpretation would also lead to the conclusion that most
12 Arizona utilities are in violation of the rule. However, R14-2-210A.2 says no
13 such thing.

14 R14-2-210.A.2. reads as follows:

15 "Each billing statement rendered by the utility or billing entity shall be
16 computed on the actual usage during the billing period. If the utility or
17 Meter Reading Service Provider is unable to obtain an actual reading, the
18 utility or billing entity may estimate the *consumption (emphasis added)*
for the billing period giving *consideration [emphasis added]* the
following factors *where applicable [emphasis added]*:

- 19 a. The customer's usage during the same month of the previous year,
20 b. The amount of usage during the preceding month."

21
22 The emphasized elements of the rule shown above can only lead to the
23 conclusion that the interpretation of the language as noted in the BWG Report is
24 not consistent with the actual language of the rule.
25
26

1 Q. ARE THERE OTHER REASONS TO BELIEVE THAT THE
2 COMMISSION HAS LIKEWISE CONCLUDED THAT "LAST MONTH"
3 AND "SAME MONTH LAST YEAR" WERE NEITHER PRESCRIPTIVE
4 NOR THE EXCLUSIVE FACTORS THAT COULD BE CONSIDERED IN
5 ESTIMATING USAGE?

6 A. Yes. Aside from the obvious fact that, without any prior objection by Staff or
7 the Commission, virtually no Arizona utility exclusively uses those two months'
8 worth of data to estimate usage even when available, clearly the current APS
9 method that uses 6 months of data for the same season will incorporate both the
10 previous month and the same month one year ago in all cases where such data is
11 "applicable." Indeed, the only time that the previous month would not be
12 incorporated is if the estimated month is the first month of a new season. Using
13 the seasonal data from the previous year but for the same season as the month
14 for which the estimate of consumption is being made is certainly a more
15 "applicable" methodology than using, for example, a winter month to estimate
16 summer consumption or visa versa.

17 There was obviously a reason Rule 210 includes the permissive term "if
18 applicable". I believe that this term provides common sense flexibility to Rule
19 210. As cited above, for seasonal rates, it makes more sense to use same season
20 data than data for the previous month. Also, the rule does not specify estimation
21 methods if data is not available. For example, if the service is at a new location
22 that previously did not have service, there would be no data for the same month
23 a year earlier. Thus, Rule 210 is intended to provide general guidelines, not
24 mandates. If Rule 210 is interpreted as a mandate, most Arizona utilities are in
25 violation of the mandate based on the data found in the Appendix to the BWG
26 report.

1 Finally, these same provisions of Rule 210 were in effect in 1996 when the
2 Commission closely examined APS' estimating procedures in the *Ciccone* case
3 and recognized that APS considered more than just the last month and the same
4 month last year. As the *Ciccone* decision observes:

5
6 APS has a computer program which it uses to estimate customer's
7 demand when it is unable to read a customer's meter for some reason.
8 The computer program estimates a customer's kW demand based on the
9 customer's actual kWh usage, his previous months' usage, and kW
10 demand readings for other customers with similar kWh usage. . . . We
11 believe that APS's computer program, which is based on actual data of
12 Mr. Ciccone's usage patterns and usage of other similar customers,
13 results in a more accurate estimate of Mr. Ciccone's actual demand
14 during the period when APS failed to reset the meter. [Emphasis
15 supplied.] [Decision No. 59919 (December 10, 1996) at 7 and 9.]

16 Thus, the BWG Report not only ignores the very language of the rule itself, but
17 also fails to take into consideration – to any extent whatsoever – the prior
18 interpretation and application by the Commission of its own rules.

19 **Q. DO YOU CONCUR WITH RECOMMENDATION IV-1 FOUND IN THE**
20 **BWG REPORT?**

21 **A.** BWG Recommendation IV-1 states: "APS should be required to obtain
22 Commission approval of its estimation procedures as a tariff filing". Although
23 there is no currently effective requirement for such approval, APS requested in
24 its Application for a Declaratory Order in October 2003 Commission approval
25 for its estimating procedures to the extent found appropriate by the Commission.
26 See Second Amended Application at pg. 13, lines 14-25. Thus, APS can accept
this recommendation as long as it applies equally to all regulated Arizona
electric utilities and does not involve any retroactive impact on current or
previous estimating procedures.

1 Q. **DOES THE BWG REPORT RECOMMEND APPROVAL OF THE**
2 **COMPANY'S PRESENT PROCEDURES FOR ESTIMATING DEMAND**
3 **AND ENERGY?**

4 A. No. Neither does it propose a different set of procedures. The Company's
5 Application requested that the Commission either approve the Company's past
6 and present estimation procedures or establish new procedures. It further asked
7 that in the latter case, the Commission should nevertheless confirm the validity
8 of bills issued using the prior methodologies. This and other issues raised in the
9 Application, including even the issue of what constitutes an "estimated bill," are
10 not even addressed, let alone resolved, in the BWG Report.

11 Q. **DO YOU CONCUR WITH BWG RECOMMENDATION IV-2?**

12 A. No. BWG Recommendation IV-2 proposes a credit to customers who, during the
13 period from 1998-2003, had an estimated demand read that was not adjusted
14 downward when the actual demand read the following month was less than the
15 estimate. If Recommendation IV-2 is adopted, APS may be required to provide
16 credits to customers whose demand was estimated as long ago as six or seven
17 years. I disagree with this recommendation for several reasons. APS made a
18 business decision in 2003, after it had otherwise modified its estimating
19 procedures for demand accounts to reduce the extent of underestimates, to
20 provide a credit if billing demand appeared to be overestimated. This procedure
21 continues today and will continue for the future unless the Commission orders
22 modifications to the practices. It was never intended to be applied retroactively
23 because of both equity concerns and practical considerations.

24 Q. **PLEASE EXPLAIN.**

25 A. If a customer has had an overestimated demand one month for which the
26 customer receives an automatic credit, but had underestimated demands in other

1 months for which the customer is never billed, that customer will be unjustly
2 enriched. And while that was also true after September 2003, improvements in
3 APS' estimation procedures had, by that time, reduced to some extent the
4 likelihood of such inequities. Applying these same crediting procedures
5 retroactively is simply not a balanced approach to bill estimation. Bill estimation
6 is, by its very nature, an inexact "science." Our analysis indicates that on a net
7 basis, we tend to underestimate. And while we can estimate the potential for
8 "over-billing," we have less ability to estimate "under-billing" on an individual
9 customer basis and thus cannot collect revenues that are owed by such
10 customers. Yet, in the aggregate, such under-billings are statistically known to
11 exist.

12
13 The balance of "over-billing" versus "under-billing" inherent in any bill
14 estimation method is not dissimilar to the same balance struck throughout the
15 rate-making process itself. Rates are not designed on an individual customer
16 basis but generally reflect the average cost to serve a particular customer class
17 and recover from that class its total allocated revenue requirements. By
18 definition, some customers in the group will pay more than cost and others less.
19 If you reduce rates for the one without increasing them for the other, you create
20 a net under-recovery of cost that will have to be paid by other customer classes.
21 Similarly, if a bill estimation process is adopted that is asymmetrical, ultimately
22 customers whose meters are accessible on a regular basis will pick up the
23 revenue deficiency from customers whose consumption is frequently estimated
24 even more than is presently the case. Prior to 2003, the average rate of
25 underestimating of demand accounts was greater than it is now. Thus, ordering a
26 retroactive credit for customers who may have received an overestimated

1 demand read during the period 1998-2003 – without attempting to do the same
2 with respect to underestimated demand reads – would be fundamentally unfair
3 and would further benefit many of those customers who brought about the very
4 access problems that required their accounts to be estimated.
5

6 Recommendation IV-2 is also impractical to implement. To determine the
7 retroactive credit as described in Recommendation IV-2, each estimated bill
8 during those five years must be examined including the time period when our
9 new customer information system was in the implementation phase. APS would
10 also have to determine whether the same customer had been under-billed during
11 other months, or had already received credit for this (via a billing exception or
12 as a result of interaction with the APS Consumer Advocate's Office), thus
13 partially or totally reducing any credit. APS would then need to attempt to locate
14 customers to provide refunds. APS experiences a high customer turnover rate
15 and locating previous customers may be costly and impractical.

16 Lastly, to require APS to retroactively apply a business decision made in 2003
17 (under different business conditions and circumstances) would discourage
18 efforts by APS in the future to make process improvements because of the
19 concern that it might create retroactive liability on the part of the Company. This
20 would be roughly analogous to attempting to apply a voluntary rate reduction
21 retroactively. Once done, it is doubtful you would see another voluntary rate
22 reduction proposed.
23

24 For all these reasons, I disagree with Recommendation IV-2. It makes neither
25 equitable nor practical sense, and it ignores the underlying business realities
26 concerning the imprecise nature of bill estimation, particularly as applied to

1 demand accounts and particularly under the estimating procedures used by APS
2 prior to 2003.

3
4 **Q. YOU HAVE SAID THAT YOU DO NOT AGREE THAT THE BWG**
5 **REPORT PROVIDES A FAIR ASSESSMENT OF THE METER**
6 **READING AND BILL ESTIMATION PRACTICES OF APS. WOULD**
7 **YOU CARE TO COMMENT FURTHER ABOUT THAT?**

8
9 A. I will leave it to Tammy McLeod to address the meter reading issues, but I feel
10 strongly that the report's discussion of APS' bill estimation practices is
11 misleading and fails to recognize process improvements and changes that are a
12 normal part of business operations. BWG interviewed numerous APS personnel,
13 was provided with copies of virtually all of APS' relevant documentation
14 relating to bill estimation, and directed that several tests be run on APS' bill
15 estimation systems. Based on all of this information, BWG has concluded the
16 same thing that APS previously told the Commission (and that APS told the
17 court in the Read litigation) – i.e., that APS, on average, has consistently
18 **underestimated** customers' bills and that there is no truth to the allegations of
19 the Read complaint that APS has systematically overcharged customers whose
20 bills must be estimated. Nevertheless, the BWG Report leaves the impression
21 that APS' bill estimation practices are beset with problems and are not consistent
22 with the practices of other electric utilities.

23 For example, the report discusses at some length the problems that occurred in
24 1998 and early 1999 when APS implemented its new CIS. However, as Ms.
25 McLeod has testified, and as this Commission is well aware, those problems
26 were both temporary and no different than the types of short-term problems that
are experienced by any business – particularly an electric utility – when
implementing a new CIS. Thus, the report's assertion and discussion that “there

1 were various problems associated with estimated bills following implementation
2 of the new CIS" (BWG report at I-9) – events that occurred more than six years
3 ago – is misleading and leaves the impression that those problems continue
4 today.

5
6 Similarly, and as I have testified at some length, I do not agree with the blanket
7 statement in the BWG Report that customers are harmed by the methodologies
8 that APS uses to estimate demand (even though BWG admits that it does not
9 know the extent of any such harm). Estimating energy usage, particularly
10 demand, is an inexact exercise, and virtually no electric utility has the range of
11 experience that APS has in estimating residential demand. Although the BWG
12 Report criticizes the decision by APS to use a class average load factor in its
13 formula for estimating demand, the report fails to analyze the various
14 considerations that make use of a class average more equitable, and the report
15 fails to acknowledge that the use of class average (and other adjustments made
16 by APS in the last few years) load data in combination with customer-specific
17 energy usage to estimate demand has, on average, made APS' estimating
18 procedures for demand accounts more reasonable and more likely to
19 underestimate than under the pre-1999 processes. That combination also
20 smoothes out the variations in estimations that can be caused by sole reliance on
21 individual customer data. By focusing on the inevitable circumstance attending
22 any estimation procedure, i.e., some individual estimates will be higher than
23 actual usage, but ignoring the fact that, on an overall basis, APS underestimates
24 demand accounts, the BWG Interim Report misunderstands the entire estimating
25 process. For these and other reasons, I do not agree with either BWG's
26 discussion or its conclusions relating to APS' estimating procedures.

1 **Q. HAS APS PROPOSED RATE CHANGES THAT WILL EFFECT BILL**
2 **ESTIMATION?**

3 A. Yes, the Proposed Settlement Agreement that has been entered into by almost all
4 parties to the APS rate case (Docket No. E-01345A-03-0437) has two elements
5 that will reduce the number of demand estimations that will likely be required in
6 the future. First, the Proposed Settlement Agreement requires that residential
7 Schedule EC-1 be eliminated in the next APS rate case. To the degree that
8 customers currently on Schedule EC-1 elect rate schedules without an explicit
9 demand charge, e.g., the TOU rate Schedule ET-1, the number of residential bills
10 that could be estimated at any point in time is reduced. The Proposed Settlement
11 Agreement also dramatically reduces the number of general service customers
12 whose bill will include an explicit demand charge. The proposed Schedule E-32
13 eliminates the demand charge for general service customers with demands of 20
14 kW or less. Approximately 79% of the 95,000 E-32 customers are 20 kW or less.
15 Therefore, the universe of general service customers where demand estimation
16 could ever be an issue will be significantly smaller than it is today. When the
17 new rates are implemented, demand readings for billing purposes will only be
18 required of approximately 20,000 E-32 general service customers as compared
19 to almost 95,000 E-32 customers today – an over 70% reduction.

20 **Q. DOES APS AGREE WITH BWG RECOMMENDATION IV-3?**

21 A. No. BWG Recommendation IV-3 proposes that APS' internal auditors conduct
22 annual internal audits on bill estimation, metering, and billing practices; ensure
23 that it has completed implementation of any findings, and that the results of
24 these audits should be filed with the Commission. I discussed this
25 recommendation, as well as the recommendation regarding an independent audit
26

1 by a Commission-hired auditor, with the director of our audit group and APS has
2 significant concerns regarding Recommendation IV-3.

3
4 The Pinnacle West Capital Corporation Audit Services Department
5 ("Department") employs a risk-based audit planning process, approved by the
6 Board of Directors' Audit Committee, to allocate its resources to areas of the
7 highest risk. The Department maintains an Audit Universe of all likely internal
8 audit projects. Annually, the universe is reviewed and updated and subjected to a
9 risk assessment methodology in order to risk-rank each project. Broadly, the risk
10 factors utilized in the risk assessment methodology are in three categories,
11 Financial Impact, Internal Control/Structure, and External Considerations. The
12 highest ranking items are added to the plan. When usage estimation, meter
13 reading and billing practices rise to the level of risk that makes them,
14 individually or collectively, appropriate for audit, they will be added to the plan,
15 as has been done periodically in the past, but certainly not on an annual basis.

16 It is worthy to note that in the current world of Sarbanes-Oxley requirements
17 relating to internal controls and auditing of Key Controls, there will for the
18 foreseeable future be some annual work done on Revenue controls processes.
19 However, this work will not result in separate audit reports dealing specifically
20 with the sub-processes, such as bill estimation, of the revenue process. It should
21 also be noted that for 2004 Sarbanes-Oxley Revenue Process controls testing,
22 usage estimation and billing were deemed below the materiality threshold for
23 definition as a Key Control and therefore, were not tested. That situation likely
24 will not change in the future.

1 If the Commission were to mandate annual internal auditing of the usage
2 estimation and billing process, such a mandate would be unprecedented, and
3 would prevent the Department from directing audit resources to areas where the
4 time could be spent to address greater risks to the Company and its customers.

5
6 The BWG Report recommends that APS should ensure that any findings
7 reported in previous internal audits are completely implemented. The
8 Department performs appropriate follow-up on the implementation of agreed
9 upon management action plans that result from internal audits. But to institute
10 an absolute requirement that all audit recommendations be automatically
11 implemented is an invitation for auditors to usurp the functions of management.
12 It would be little different that suggesting that the Commission be required to
13 follow without question every recommendation of its Staff.

14 On principle, APS believes the recommendation that internal audit results be
15 filed with the Commission to be inappropriate. Internal audits are done for
16 management purposes only and are not intended for external use. These reports
17 may include detailed critical evaluations of our Company's operations.
18 Disclosure of this information would also be inconsistent with the expectations
19 of individuals who provided such information on the basis that it would remain
20 both confidential and internal to APS. If this expectation were breached, it
21 would significantly impair the free flow of confidential information to the
22 Department and thus reduce the likelihood of any improvements resulting from
23 future internal audits. This would be contrary to public policy expectations that
24 public companies have vigorous programs of self-analysis and control
25 improvement.
26

1 Q. DOES APS AGREE WITH THE BWG RECOMMENDATION THAT AN
2 INDEPENDENT AUDITOR BE USED TO DETERMINE COMPLIANCE
3 WITH ANY ORDER IN THIS PROCEEDING?

4 A. We believe this is unnecessary, unwarranted by any findings in the BWG
5 Report, and is an inappropriate use of resources. Bill estimation affects a very
6 small number of customers, and our analyses indicate that we tend to
7 underestimate. Regardless of any modifications to our current practices, we will
8 always have some customers who deny us access or we simply can't get a meter
9 read. Determining compliance with any Commission order or directive is and
10 should remain an internal Commission Staff function. Adding additional costs to
11 address issues that impact a small number of customers simply is not fair to
12 those customers where access is not an issue.

13 Q. DO YOU HAVE ANY CONCLUDING REMARKS?

14 A. Yes. The BWG Report is both incomplete in its analysis and unsubstantiated in
15 its conclusions. It does not give the Commission a complete, and in some
16 instances, accurate picture of the Company's meter reading and billing practices,
17 especially if the reader only reviews the summaries found early in the report. In
18 other instances, it focuses on long past events that were well known to the
19 Commission at the time. Its recommendations ignore much of the Company's
20 requests in the Application, neither supporting nor opposing them. Finally, its
21 recommendations, as they would impact the estimation of customer usage and
22 demand, would increase the net under-collection from the group of customers
23 receiving bills based on estimated meter readings, many of whom create the
24 very conditions that require their bills to be estimated.

25 Q. DOES THAT CONCLUDE YOUR REBUTTAL TESTIMONY?

26 A. Yes.

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5 **REBUTTAL TESTIMONY OF TAMMY MCLEOD**
6

7 **On Behalf of Arizona Public Service Company**
8

9 **Docket No. E-01345A-03-0775**

10 **Docket No. E-01345A-04-0657**
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16
17
18
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22 **JANUARY 24, 2005**
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24
25

Table of Contents

I.	INTRODUCTION	1
II.	SUMMARY OF REBUTTAL TESTIMONY	1
III.	REBUTTAL TESTIMONY AS TO METER READING ISSUES	2
IV.	REBUTTAL TESTIMONY AS TO READ COMPLAINT AND BILLING ISSUES	12
V.	THE READ COMPLAINT	15

1 **REBUTTAL TESTIMONY OF TAMMY MCLEOD**
2 **ON BEHALF OF ARIZONA PUBLIC SERVICE COMPANY**
3 **(Docket Nos. E-01345A-03-0775 and E-01345A-04-0657)**

4 **I. INTRODUCTION**

5 **Q. PLEASE STATE YOUR NAME AND ADDRESS.**

6 A. My name is Tammy McLeod. I am the General Manager of Customer Service and
7 Southern Arizona operations for Arizona Public Service Company ("APS" or
8 "Company"). My business address is 2121 W. Cheryl Drive, Phoenix, Arizona.

9 **Q. HAVE YOU PREVIOUSLY FILED TESTIMONY IN THIS DOCKET?**

10 A. Yes, I filed Direct Testimony on November 23, 2004.¹ That testimony explained
11 the background facts relating to APS' meter reading practices and bill estimation
12 procedures, and various other matters concerning the Application.

13 **Q. WHAT IS THE PURPOSE OF YOUR RESPONSIVE TESTIMONY?**

14 A. My testimony provides comments regarding the report prepared by Staff's
15 consultant, Barrington-Wellesley Group, Inc. ("BWG Report"), as part of the Staff
16 inquiry into the usage estimation, meter reading and billing practices of APS, as
17 well as Complainant's "testimony"² and the related Complaint filed with the
18 Commission.

19 **II. SUMMARY OF REBUTTAL TESTIMONY**

20 **Q. WOULD YOU PLEASE SUMMARIZE YOUR REBUTTAL TESTIMONY?**

21

¹ There was one small formatting error in my testimony filed on November 23, 2004.
22 Corrected testimony was filed on January 7, 2005.

23 ² Complainant did not file any actual testimony with the Commission. Instead,
24 Complainant only filed the depositions of a number of APS employees who had been
25 deposed by Complainant's counsel. Most of the testimony by these employees is not
 relevant to the matters before the Commission because these employees had no
 knowledge, personal or acquired, about these issues.

1 A. My testimony focuses on the meter reading and customer service aspects of the
2 BWG report and Complainant Read's "testimony" and Complaint. I also have
3 specific comments about several of the conclusions and recommendations
4 contained in the BWG report. In short, however, APS is already taking most of
5 the actions recommended by BWG. In addition, the issues raised by BWG
6 concerning Complainant Read are based on erroneous information or are simply
7 unsubstantiated speculation.

8 APS witness David Rumolo's rebuttal testimony addresses the bill estimation
9 aspects of the BWG report and Complainant's Complaint.

10 **III. REBUTTAL TESTIMONY AS TO METER READING ISSUES**

11 **Q. DO YOU CONCUR WITH RECOMMENDATION III-1 FOUND IN THE**
12 **BWG REPORT?**

13 A. No. The recommendation is unnecessary and ignores the facts as to what APS
14 already does. BWG recommends that APS put new procedures in place to ensure
15 that staffing resources are sufficient to address emergency short-term needs for
16 meter reading shops that are either small or remote. APS believes that its current
17 processes and procedures *do* ensure that resources are sufficient to address
18 emergency short-terms needs for meter reading shops that are either small or
19 remote.

20 **Q. PLEASE EXPLAIN.**

21 A. Back-up support for each small or remote meter reading shop is provided by the
22 office that is closest to that meter reading shop, and ultimately by metro Phoenix.
23 The small remote locations and their back-up support are shown below:

- 24 • Winslow – Flagstaff
- 25 • Holbrook – Snowflake
- San Luis – Yuma

- Douglas – Casa Grande and Globe
- Bisbee – Casa Grande and Globe

The back-up office is responsible for sending coverage to the remote office should the need arises due to personal time off or other unscheduled emergencies. This process minimizes the potential for meters that are not read due to unscheduled emergencies.

The BWG report references an incident that occurred almost three years ago where for a period of approximately five months (March – August, 2002), a series of unfortunate and highly unusual events caused meters to be estimated in the Bisbee and Douglas area. When one examines the data for the remote offices as a whole, it is obvious that this was an isolated situation. In addition, since this occurred, the Bisbee and Douglas offices have been realigned under the same leadership as Metro-Phoenix, so Metro-Phoenix now provides another level of back-up support that did not exist in 2002. Noticeably, the isolated problems that occurred in the Spring of 2002 in the Bisbee and Douglas area have now been minimized.

Q. DO YOU AGREE WITH BWG'S ASSERTIONS ABOUT THE NUMBER OF "SKIPPED" READS THAT OCCURRED FOR APS CUSTOMERS AS SHOWN IN TABLE III-5 OF BWG'S REPORT?

A. No. Table III-5 of the BWG report is simply incorrect. This Table purports to show the number of "skipped reads" from 1995 through 2004. (BWG defines "skipped reads" as meter readings that did not occur because back-up meter reading sources are not available.) BWG says that it obtained these figures from APS' response to Staff DR 6-11. In fact, however, APS' response to Staff indicated there were no "skipped" reads in the sense that APS made no effort to obtain the read. Moreover, the numbers shown on BWG's Table as "skipped reads" included instances in which a meter was not able to be read for reasons other than emergency staffing issues. APS is not able to determine the actual number of "skipped reads" -- as

1 defined by BWG -- for these years, but it is fair to say that the number of meter
2 readings that did not occur from 1995 through 2004 because back-up meter
3 reading resources were not available was very, very small. It is also important to
4 point out that even using BWG's numbers, which are erroneous as defined, BWG
5 admits on page I-6 of its report that these figures are reasonable when compared to
6 industry practices.

7 **Q. DO YOU CONCUR WITH RECOMMENDATION III-2?**

8 A. Not completely. As to the first part of this recommendation, APS has completed a
9 pilot project in Metro-Phoenix, in which the number of consecutive months that
10 the meter reading department cannot access a specific meter is tracked manually
11 via a spreadsheet. The pilot project has indicated the effectiveness of such
12 information, and as a result, APS is in the process of revising its "No Access
13 Meters" report to include this information. As to the second portion of the
14 recommendation, however, adding the information about the other instances of "no
15 access" at a property during the previous 24 months (as recommended by BWG)
16 would not change any of the processes or procedures associated with our attempts
17 to gain access. In fact, it is not even useful information.

18 **Q. WHY IS THAT?**

19 A. Knowing about other instances of non-access during the prior two years is of no
20 help in obtaining access today. Moreover, APS already escalates its efforts to
21 obtain access with each "no access" occurrence, as I explained in great detail in
22 my Direct Testimony. There is little, if anything, more that APS could do simply
23 because this sort of data would be incorporated into a formal report.
24
25

1 Q. PLEASE CONTINUE WITH YOUR DISCUSSION OF BWG
2 RECOMMENDATION III-2.

3 A. BWG further recommends that APS should prioritize and focus first on customers
4 with demand accounts when working the "no access" report.³ APS does not
5 prioritize the customers with demand accounts and does not believe it is
6 appropriate to do so without express Commission authorization for such special
7 treatment. Instead, APS concentrates on resolving access issues with all customers
8 that are included on the "no access" report as quickly as possible. However, should
9 the Commission establish that preferential treatment should be provided to
10 demand customers, our current practice can certainly be modified.

11 Q. DOES APS AGREE WITH RECOMMENDATION III-3?

12 A. APS already does what is being recommended. Recommendation III-3
13 recommends that APS monitor the extent to which APS complies with the
14 Commission requirement that meters be read with 25-35 days after the last meter
15 reading.⁴ APS believes that it already takes such monitoring steps. As a result of
16 the Commission requirement to read meters each month within a 25-35 day
17 window (which has now existed for a number of years), several years ago APS
18 developed a web query, which enables the meter reading leaders to pull a daily
19 report that indicates any route that is in jeopardy of being read too early or any
20 route that is nearing the 35 day deadline. All meter reading locations use this tool
21 on a daily basis to plan their work and accomplish the meter reads within the time
22 frame set forth by the Commission.

23 ³ In its report, BWG states that this Recommendation refers to Finding III-9. There is no
24 "Finding III-9" in the BWG report.

25 ⁴ BWG states that Recommendation III-3 refers to Finding III-9. There is no "Finding
III-9" in the BWG report.

1 **Q. DOES APS CONCUR WITH RECOMMENDATION III-4?**

2 **A.** In Recommendation III-4, BWG suggests that the Itron software used by meter
3 readers be changed so that it no longer includes the last month's usage and the last
4 month's meter readings.⁵ In fact, last year APS began to evaluate this very issue.
5 (It is important to note, however, that this change has no effect on the day-to-day
6 management of meter reading.)

7 In 2004, APS Metro Meter Reading established a single shop pilot to evaluate the
8 need to display the last read and usage data in the handheld computer utilized by
9 meter readers. The display for both fields was disabled in one shop location to
10 determine if there would be any adverse impacts on the effectiveness of the meter
11 readers. The pilot results indicated that most meter readers did not experience any
12 negative impacts by not having this feature. A small number of meter readers
13 indicated that although the fact that the feature was no longer included on their
14 handheld, these readers liked the previous feature because the information served
15 as a self check of their dial reads when the handheld indicated a high/low check.
16 All meter readers indicated, however, that the lack of the feature would not have
17 an adverse impact to their existing reading process.

18 Given the results of the pilot program, APS expanded this effort throughout the
19 Metro Phoenix shops for further evaluation of impacts. The individual findings in
20 the expanded program were comparable to the original pilot shop findings. APS
21 undertook the next step of this program and created instructions so that all of the
22 state region offices could make a similar change. As a result, APS believes that the
23 steps to implement Recommendation III-4 have already occurred.

24 ⁵ According to BWG, Recommendation III-4 refers to Finding III-10. There is no
25 Finding III-10 in the BWG Report.

1 Q. DOES APS CONCUR THAT APS SHOULD PROVIDE THE COMMISSION
2 WITH QUARTERLY REPORTS ABOUT THE STATUS OF THE REMOTE
3 METER READING PILOT AND IMPLEMENTATION PLANS, AS
4 SUGGESTED BY RECOMMENDATION III-5?

5 A. As with several of the recommendations listed above, APS believes that
6 Recommendation III-5 is simply not necessary, in light of the fact that APS
7 currently has an AMR (Automatic Meter Reading) pilot in progress.⁶ Moreover,
8 BWG's discussion of this issue at page III-12 of its Report is overly simplistic and
9 fails to acknowledge both the careful study that APS is undertaking and the costs
10 and logistical issues associated with AMR, which I discuss in more detail in the
11 AMR Overview attached as Schedule TM-1R.

12 In particular, BWG compares APS to other utilities with implications that our
13 implementation of AMR is somehow "behind" the "best practices" electric
14 utilities. The fact is that AMR technology only advanced in the last couple of
15 years to the point where either time-of-use or demand meters could be served in
16 this manner. Given the high percentage of time-of-use and demand customers in
17 the APS service territory, the AMR technology needed to advance to the point it is
18 today for APS to move forward with the AMR pilot.

19 In addition, APS' study of AMR is not new. The Company had conducted
20 extensive studies and cost analysis in the early 1990's, but as the Commission
21 promoted direct access, it was unclear what metering responsibilities would
22 remain with APS and what future rate designs would be in place -- and thus what
23 metering capabilities would be required -- for either direct access or standard offer
24 customers. This uncertainty made the foray into AMR impractical and risky.

25 ⁶ BWG states that this Recommendation refers to Finding III-10. There is no Finding
III-10 in the BWG Report.

1 In sum, APS believes that it has already begun a remote meter pilot, as described
2 above and in Schedule TM-1R. In addition, it is not necessary for APS to provide
3 the Commission with a report every three months related to the status of the pilot.
4 Once APS reaches a decision regarding these issues, APS certainly will advise the
5 Commission about how APS intends to proceed.

6 **Q. DOES APS CONCUR WITH RECOMMENDATION III-6?**

7 A. BWG's Recommendation III-6 is not necessary because APS already takes the
8 actions suggested by BWG.⁷ Through use of an auto-dialer, APS already calls "no
9 access" customers prior to the next scheduled read date. This is part of the
10 standard "no access" process where customers are called after the third
11 consecutive access issue. This process has already been provided to the
12 Commission and is detailed in the BWG Report. Moreover, we also already
13 maintain records on the number of instances that the auto-dialer is used to call
14 customers. In addition, to ensure that customers with access issues are aware of
15 their meter read date, APS mails these customers read schedules and maintains a
16 daily "Info Line," which provides our customers information about the meter read
17 date.

18 **Q. DOES APS CONCUR WITH RECOMMENDATION III-7?**

19 A. In Recommendation III-7, BWG recommends that APS implement a pilot program
20 to evaluate whether scheduling appointments with "no access" account customers
21 results in less estimated reads due to "no access" problems.⁸ APS does not believe
22

23 ⁷ BWG states that Recommendation III-6 refers to Finding III-12. There is no "Finding
24 III-12" in the BWG report.

25 ⁸ BWG states that Recommendation III-7 refers to Finding 12. There is no "Finding 12"
in the BWG report.

1 that this Recommendation makes sense for a number of reasons, as set forth
2 below. First, Schedule 1, Section 5.4 requires that the Company's authorized
3 agents shall have unassisted access to Customer's premises at all reasonable hours
4 to install, inspect, read, repair or remove its meters. BWG fails to take into
5 consideration that unassisted access is not only required for reading a meter, but
6 unassisted access is also required during a fire, an outage and other legitimate
7 safety or routine maintenance related situations. The idea of a pilot program
8 requiring the Company to "schedule" reads essentially negates the existing
9 Commission requirement for unassisted access. Second, this recommendation is
10 quite costly because a scheduling mechanism would have to be developed, and
11 weekend and night crews established.⁹ Third, this recommendation would cause
12 APS to create an asymmetrical service model in favor of no access customers.
13 Moreover, the current "access procedure" already provides for extensive customer
14 contact via a variety of media -- a door hanger left at the non-access customer site,
15 a note on the bill, phone calls, and post cards mailed to the non-access customer.

16 After receiving the BWG report, APS, on its own initiative, contacted Utah Power
17 and Light ("UP&L") regarding the scheduling of appointments for meter reads
18 with access issues. In its report, BWG identified UP&L as having such a
19 practice.¹⁰ In fact, however, we learned that UP&L's "appointment" option is not
20 done on a regular basis because UP&L also has the option of sending a prepaid
21 postcard. In reality, UP&L typically makes appointments only for special reads
22 (for example, in very high-security areas such as prisons) just as APS does today.

23 ⁹ If the Commission adopts Recommendation III-7, APS will request that the
24 Commission also adopt a tariff so that APS is reimbursed for these costs.

25 ¹⁰ It is important to note that UP&L does not have a demand based rate for residential
customers.

1 In addition, UP&L told us that they charge customers if the appointment occurs at
2 a time outside normal business hours. For chronic access issues, UP&L uses
3 methods similar to APS' methods to gain access to the meter (providing meter
4 reading schedules, sending cards for customer reads, etc.). In sum, UP&L does not
5 use routine appointments to solve chronic access issues and makes any such
6 appointments at its own discretion.

7 **Q. DOES APS AGREE WITH RECOMMENDATION III-8?**

8 A. APS believes that APS already does exactly what the Recommendation suggests.
9 In Recommendation III-8, BWG proposes that APS implement a policy to ensure
10 that meter reading supervisors periodically inspect meter locations reported as "no
11 access" to verify that appropriate corrective measures are taken. While we do not
12 have a formal policy, APS' current process does exactly that. Every shop
13 supervisor, head meter reader or production coordinator periodically inspects
14 meter locations identified as "no access" to verify the conditions.¹¹ In addition,
15 APS produces an "Abnormal Read Report" at the shop level. This report
16 highlights any meter where the demand was not reset (meaning the meter was not
17 physically accessed) or where the read obtained was seriously out of line from the
18 previous month. The leader or production coordinator is then able to visit the field
19 to inspect the circumstances that have caused the meter to appear on the report.

20 **Q. DOES APS CONCUR WITH THE RECOMMENDATIONS OF RECOMMENDATION V-1?**

21
22
23 ¹¹ There are a few small shops that do not have a shop supervisor, head meter reader or
24 production coordinator. Given the small number of meters in these locations, it is simply
25 unnecessary and impractical to have an individual periodically inspect locations
identified as "no access" to verify the conditions.

1 A. No. This recommendation is virtually identical to Recommendation III-7, which
2 suggests that APS implement a pilot program to determine if scheduling
3 appointments with "no access" customers reduces the number of estimated bills.
4 As I outlined in my testimony above, this idea is costly and impractical. First,
5 BWG appears to ignore the extensive steps that APS takes to obtain actual meter
6 readings at customer premises, including a note on the bill, automated and
7 personal phone calls, door hanger left at the non-access customer site, and post
8 cards mailed to the non-access customer. (These steps were outlined in further
9 detail in my Direct Testimony.) Moreover, as outlined above, it is important for a
10 number of safety reasons for APS to have unassisted access to the meter, in
11 addition to the Commission and APS' desire that meters be read every month. This
12 idea would actually encourage customers to continue to deny APS unassisted
13 access to their meters, contrary to R14-2-209(D). Finally, as discussed earlier, this
14 Recommendation would be expensive to implement because APS would have to
15 develop a scheduling mechanism, and hire additional resources statewide to staff
16 after-hours and weekend crews.

16 **Q. DOES APS AGREE WITH RECOMMENDATION V-2?**

17 A. BWG suggests in Recommendation V-2 that APS continue to participate in
18 benchmarking studies that compare APS' practices to other electrical utilities and
19 providing those studies to Staff on a quarterly basis. APS does participate in
20 various benchmarking studies when we determine they are useful and cost
21 effective. When the Company does participate in benchmarking studies, we can
22 provide them to the Commission. We do not participate in benchmark studies on a
23 quarterly, or even yearly, basis because neither APS nor industry standards and
24 metrics change that frequently. To suggest that we participate in every such study
25 that may be proffered is unnecessary and wasteful.

1 **IV. REBUTTAL TESTIMONY AS TO READ COMPLAINT AND BILLING**
2 **ISSUES**

3 **Q. DOES APS CONCUR WITH RECOMMENDATION VI-1?**

4 A. BWG suggests in Recommendation VI-1 that APS should train its Billing Services
5 Representatives and others involved in the meter reading and billing process to (1)
6 understand that customers value an accurate bill more than an underestimated bill,
7 and (2) recognize situations in which the underestimation of usage may result in
8 problems for their customers. APS recognizes that there is value to APS and to all
9 of its customers -- including those APS customers who do provide APS unassisted
10 access to their meters as required by R14-2-209(D) -- in receiving estimated bills
11 that come as close as possible to estimating the actual usage. APS does understand
12 the importance of having an estimating process that meets this goal, and already
13 trains its Billing Services Representatives (BSRs) and others involved in the
14 process to ensure that the estimated bill is as close as possible to the actual usage.
15 Although it obviously makes sense to automate the estimating process as much as
16 possible, the APS estimating procedures will generate billing exceptions in those
17 instances where an estimated bill appears to be unusual or where sufficient
18 information for a computerized estimate is not available for that customer. When a
19 billing exception is generated, the bill is referred to a BSR for review and
20 attention.

21 Further, in late 2000 and 2001, APS had a company-wide initiative to educate and
22 raise awareness for all of its 6000 employees with respect to the key components
23 of customer satisfaction. One of the points emphasized as part of this initiative was
24 the importance of having accurate meter read and payment amount. APS identified
25 this issue to all employees as a key component of Customer Satisfaction. In sum,
APS believes its BSRs are already trained and understand the value of estimating a
meter read as accurately as possible, and no additional training is needed as

1 suggested by BWG. Moreover, because bill estimation inherently is an inexact
2 exercise that can be impacted by numerous variables, APS strives to give
3 customers the benefit of the doubt to the extent reasonably possible. To the extent
4 that this has resulted in more underestimation than overestimation on average,
5 APS believes that customers generally recognize and value the efforts that APS
6 has made to benefit these customers.

7 **Q. WHAT ARE THE HIRING REQUIREMENTS FOR BILLING SERVICE**
8 **REPRESENTATIVES AND HOW ARE THEY TRAINED?**

9 A. In general terms, the BSRs are selected from employees within the APS Call
10 Centers or Business Offices who have demonstrated that they can effectively
11 handle more complex customer inquiries and issues and understand the many
12 factors that influence a customers usage patterns. An employee selected as a BSR
13 must possess significant CIS skills, as well as general business knowledge. There
14 are three levels of Billing Representatives: beginning, intermediate and senior.
15 Promotion opportunities are available only when a position becomes vacant. These
16 titles can be somewhat misleading because several of the BSRs have been in their
17 position for many years and have acquired substantial billing knowledge during
18 their tenure, which in turn is passed on to other BSRs. (The BSRs have an average
19 tenure of 8.6 years in Billing Services.)

20 Training for a Beginning Level BSR position consists of 1-2 weeks of introductory
21 training with a Training Instructor. A summary of the BSR training is attached as
22 Schedule TM-2R. Once the introductory training is completed, a BSR will spend
23 the next 3-6 months in on-the-job training with other BSRs learning each billing
24 exception. As a BSR learns the exception resolution process, the BSR is permitted
25 to work independently until he or she is trained to resolve a different exception
type. At any stage, the BSR always has access to assistance should the need occur.

1 **Q. HOW DOES APS MONITOR A BILLING SERVICE REPRESENTATIVE'S PERFORMANCE?**

2 A. After a BSR begins to operate independently, his or her performance is monitored
3 by APS' Quality Control system, which is in fact designed to ensure that BSRs are
4 acting appropriately in dealing with all issues, including estimating. In fact,
5 because quality is a priority, the BSR is permitted to learn at his or her own pace,
6 with the expectation that the BSR will reach full production within 12 months.

7 **Q. DOES APS CONCUR WITH RECOMMENDATION VI-2?**

8 A. In Recommendation VI-2, BWG suggests that APS provide a clearer notice on re-
9 billed accounts. APS is at present processing an enhancement to its billing format
10 that I believe will do a superior job of depicting corrected charges and rebilling
11 situation.

12 Specifically, the bill will specify "Credits for Cancelled Bills" and "Corrected
13 Charges" on the front page in the "Summary of What You Owe" section. In
14 addition, APS will include -- where possible -- a direct correlation between the
15 cancelled bill amount and the corrected charges. (This is not possible where billing
16 periods have changed.) The exact verbiage will read: "Your previously billed
17 charges of [\$____] have been cancelled. This page reflects corrected charges."
18 The detailed information found on this page will then tie to the Summary section
19 on the front page. Thus, the summary clearly and succinctly leads customers
20 through the explanation of their "Total amount due."

21 This enhancement is being done in conjunction with the billing changes already
22 required within CIS to implement the eventual results of Docket No. E-01345A-
23 03-0437. Therefore, APS will begin to send these redesigned bills to customers on
24 the same day that the new rate structure goes into effect. Consequently, APS
25

believes that it has already taken steps to address BWG's concerns in this area, and that no further steps are necessary.

Q. ARE THERE ANY OTHER ISSUES WITH RESPECT TO THE BWG REPORT THAT YOU WOULD LIKE TO ADDRESS?

A. In numerous places in its report, BWG suggests that APS' efforts to improve its meter reading and billing departments were brought about by the Read Complaint. In fact, that assertion is simply incorrect. APS is constantly seeking to improve its meter reading, billing and other customer service departments, and the improvements that were noted by BWG and are discussed above were simply part of APS' efforts to improve itself and provide the best service possible to its customers.

V. THE READ COMPLAINT

Q. DOES APS CONCUR WITH BWG'S ANALYSIS OF THE READ COMPLAINT?

A. Not entirely. As part of its underlying report, BWG also analyzed the Avis Read Complaint. It is important to note that BWG concluded that contrary to the allegations in the Read Complaint, Mrs. Read suffered no damage as a result of the estimated bills she received from APS. BWG confirmed APS' contention that Mrs. Read's accounts were consistently underestimated on those occasions when APS was forced to estimate her bill because of a lack of access to her meter.

Mrs. Read had two accounts. The first, which BWG calls the "Paradise Valley account," was a non-demand account and as BWG concedes in its report, customers with non-demand accounts who receive estimated bills are not damaged because their accounts are eventually "trued up" once an actual read is obtained. As to the Paradise Valley account, the estimated bills unquestionably underestimated, rather than overestimated, Mrs. Read's usage at this address. Mrs.

1 Read's second account, which was located in Phoenix, was also underestimated in
2 the few months when APS was required to send Mrs. Read estimated bills.

3 **Q. DOES APS AGREE WITH BWG'S SPECULATION THAT THE**
4 **UNDERESTIMATED BILL MADE IT LESS LIKELY THAT**
5 **COMPLAINANT WOULD REDUCE HER ELECTRICAL USAGE?**

6 **A.** No. There is no basis for any such conclusion. BWG speculates that the
7 underestimated bills made it less likely that Mrs. Read would take measures to
8 reduce her usage. This is pure speculation, however, and is simply not borne out
9 by the facts. In fact, the record demonstrates that even after Mrs. Read received
10 bills for actual reads, showing that she was consuming very large quantities of
11 energy, and even after APS pointed out to Mrs. Read that her electric consumption
12 was excessive, Mrs. Read took no steps to reduce her electricity usage. During the
13 entire time that Mrs. Read was an APS customer, her electricity usage remained
14 consistently high.

15 For instance, in September and October 2000, APS was able to obtain an actual
16 read of Mrs. Read's Paradise Valley meter. Her kWh usage for the September read
17 (reflecting two months worth of electrical usage because the August 2000 read
18 was estimated) was 9855 kWh (total bill of \$1296); the following month, Mrs.
19 Read's October usage was 4789 kWh, which is an extremely large amount of
20 electricity consumption (total bill of \$620). In addition, when Mrs. Read began to
21 provide APS regular access to her Paradise Valley meter in 2002 and 2003, her
22 electricity consumption remained high and did not appear to be impacted by the
23 fact that she was receiving bills, based on actual reads, that in some months totaled
24 more than \$700.00. In fact, these consumption figures even triggered a
25 requirement that the meter reader read the meter for a second time and verify the
kWh read.

Mrs. Read's consumption and bill amounts for actual reads in 2002-2003 are shown below. The usage for virtually every month would be considered "high."

Date of Meter Read	kWh Consumption	Total Dollar Amount of Bill
04/19/2002	2877	\$242.75
05/20/2002	3524	\$446.12
06/19/2002	4823	\$617.76
07/19/2002	6032	\$769.33
08/19/2002	6145	\$779.28
09/18/2002	5648	\$714.73
10/18/2002	3196	\$396.16
11/18/2002	2338	\$195.66
12/20/2002	2469	\$206.15
01/21/2003	2428	\$202.88
02/20/2003	2150	\$180.60
03/24/2003	2285	\$191.41
04/21/2003	1969	\$166.10
06/19/03 (May was estimated)	3585	\$609.92
07/21/2003	6156	\$772.24
08/19/2003	5814	\$724.10
09/18/2003	5538	\$688.84

Date of Meter Read	kWh Consumption	Total Dollar Amount of Bill
10/20/2003	4035	\$496.84
11/19/2003	1862	\$155.03
12/18/2003	1999	\$165.83
01/21/2004	2485	\$204.14
02/20/2004	2193	\$181.14

Q. DID APS HANDLE COMPLAINANT'S ACCOUNTS APPROPRIATELY IN TERMS OF CUSTOMER SERVICE?

A. Yes. BWG's conclusion to the contrary appears to ignore the extensive measures that APS took to get access to Mrs. Read's meter to obtain an actual meter read. Moreover, BWG's suppositions about other ways in which APS might have read Mrs. Read's Paradise Valley meter are, quite frankly, unfounded and, as set forth in more detail below, are simply not possible.

Virtually all of BWG's criticisms of APS' handling of the Read accounts relate to Read's Paradise Valley account, so that is where I will focus my rebuttal testimony.¹² At page VI-I of its report, BWG states that APS "did not access" Mrs. Read's meter at the Paradise Valley premises from June 1999 through February 2000. This statement is misleading in that it implies that APS made no

¹² The only criticism of the manner in which APS handled Mrs. Read's Phoenix account is the fact that APS did not send Mrs. Read a bill from December 1998 until March 1999 because of problems with APS' new CIS system. APS regrets that this unavoidable, one-time problem resulted in a number of APS customers not receiving bills for a time period. However, the issues related to the implementation of a new CIS system, which occurred now more six years ago, have long since been resolved. APS respectfully submits that BWG's reference to this long-resolved, unusual, one-time event as a basis for criticizing APS' handling of the Mrs. Read's Phoenix account is unwarranted.

1 attempt to read Mrs. Read's meter during this period. In fact, APS went to Mrs.
2 Read's residence every month and attempted to read the meter. In each of these
3 months, however, Mrs. Read's gates were locked and APS was unable to access
4 her meter. Moreover, as discussed below, APS took extensive steps to actually get
5 a meter read, including calling Mrs. Read, sending letters and postcards, and
6 leaving door hangers on her door.

7 **Q. BWG STATES IN ITS REPORT THAT THE "OWNER OF THE**
8 **PROPERTY" TOLD BWG THAT THE GATES AT COMPLAINANT'S**
9 **PARADISE VALLEY PROPERTY WERE NOT LOCKED DURING THE**
10 **RELEVANT PERIOD. IS THAT INFORMATION CORRECT?**

11 **A.** When BWG went to look at the Paradise Valley residence previously occupied by
12 Mrs. Read, the current owner, George Bien-Wilner, told BWG that the gate at the
13 front of the property did not hold a lock. Although that may be true today, that was
14 not the case when Mrs. Read lived at the residence and APS attempted to gain
15 access. Indeed, one of APS' account notes (to which BWG had access) indicates
16 that on September 5, 2000, Mrs. Read confirmed in a conversation with an APS
17 billing representative that both gates on the property had locks on them.

18 During this conversation with APS, Mrs. Read stated that if the meter reader tried
19 to enter the property from the west gate, the meter reader would encounter dogs
20 and that Mrs. Read was not willing to unlock that gate. As to the other gate, Mrs.
21 Read stated that APS could cut off her lock and replace it with an APS lock. That
22 would not, however, have resolved the dog issue. Moreover, it may be that APS
23 reasonably thought the access problem had finally been resolved because APS was
24 able to get an actual read of Mrs. Read's meter on September 18, 2000, two weeks
25 after the conversation with Mrs. Read, as well as for the ensuing October and
November 2000 billing periods.

1 In any event, BWG's conclusion that there was no access problem at the Read
2 residence because the gates allegedly were not locked is simply incorrect.

3 **Q. DID APS PROPERLY CONSIDER OTHER ACCESS ALTERNATIVES**
4 **THAT WOULD PERMIT IT TO OBTAIN A READ OF COMPLAINANT'S**
5 **PARADISE VALLEY METER?**

6 **A.** At page VI-5 of its report, BWG states that it is not clear whether APS properly
7 considered other access alternatives that would permit APS to read Mrs. Read's
8 Paradise Valley meter. In reality, as the facts demonstrate, there was no "other
9 alternative" to read the meter at Mrs. Read's Paradise Valley home.

10 The house to the west of Mrs. Read's home has a meter in front of the house.
11 Although the house to the east has a gate that currently has a lock-box, during the
12 period that APS attempted to read the Read meter, this gate was locked. In
13 addition, it is impossible to see Mrs. Read's meter from the back yard of the house
14 to the east.

15 BWG also speculates that the meter reader may have been able to cross the
16 undeveloped lot next to the Avis Read backyard and read the meter from over the
17 fence. This is pure speculation. In fact, the meter reader who routinely read Mrs.
18 Read's account in 1999 and 2000 advised BWG in his January 5, 2005 interview
19 that he believed that this undeveloped lot used to have a house on it when he was
20 reading this account. In addition, the meter reader explained to BWG in his
21 interview that during the time in question, vegetation around the entire perimeter
22 of the Read residence prevented the meter from being read from anywhere outside
23 the Read property.

24 **Q. WHAT STEPS DID APS TAKE TO GET ACTUAL READS FOR**
25 **COMPLAINANT'S PARADISE VALLEY ACCOUNT?**

1 A. One is left with the impression from the BWG report that APS took no steps to try
2 to get actual reads for Mrs. Read's meters. Again, this is not borne out by the facts.
3 On January 5, 2000, as a result of the fact that APS had estimated Mrs. Read's
4 bills in 1999, APS sent Mrs. Read a letter listing her 2000 Meter Reading Schedule
5 for the Paradise Valley account. On February 24, 2000, APS sent a postcard to
6 Mrs. Read and advised her that the read on her current month's bill was estimated
7 because the meter reader was unable to access her meter due to a locked or broken
8 gate. The postcard also asked Mrs. Read to read her electric meter and mail back
9 the postcard with the readings. On March 2, 2000, APS also sent Mrs. Read a
10 letter because the access gate was locked, and asked Read to call APS. (Mrs. Read
11 apparently did call APS with a meter read on March 3, 2000). On March 30, May
12 1 and June 1, 2000, APS sent letters to Mrs. Read, advising her that the meter
13 reader was unable to access her meter because the access gate was locked. APS
14 stated that APS needed to be able to read her meter every month to provide her
15 with an accurate bill, and asked Mrs. Read to call APS to discuss possible options.
Mrs. Read never responded to the letters.

16 In September 2000, APS did have a number of conversations with Mrs. Read
17 about her account, where APS pointed out to Mrs. Read that her electricity
18 consumption appeared to be quite large and suggested various options to try to
19 determine if there was some other explanation for Mrs. Read's high usage. After
20 the conversation with Mrs. Read on September 5, Mrs. Read authorized APS to
21 speak with a "Lydia," a friend of Mrs. Read. During this conversation, APS told
22 Lydia that Mrs. Read had already used 1613 kWh in 8 days. APS advised Lydia
23 that this was very high usage and suggested that Mrs. Read have her air
24 conditioning and other major appliances checked.
25

1 On October 13, 2000, Mrs. Read called again to complain about the amount of her
2 bills. APS agreed to have the meter checked to ensure it was not defective. APS
3 explained to Mrs. Read that if the meter was operating normally, it had to be
4 something in her home that was causing such high usage numbers. On October 18,
5 2000, the Customer Associate again spoke to Mrs. Read and told her that the
6 actual read on October 18 was in line with the actual September read, and it
7 therefore appeared that the meter was not defective. The Customer Associate again
8 suggested to Mrs. Read that she ask her landlord to have someone look at the
9 appliances in the home.

10 On January 29 and February 27, 2001, APS again sent a postcard to Mrs. Read
11 asking for a manual reading of her electric meter. On March 6, 2001, APS
12 received one of the cards back from Mrs. Read, which included a manual meter
13 read. APS was able to access Mrs. Read's meter in late March and April 2001.
14 However, for the next two months APS was unable to access Mrs. Read's meter
15 because of a locked gate. On May 25 and June 26, 2001, APS sent Mrs. Read a
16 postcard, telling her that APS was forced to estimate her bills because the access
17 agate was locked, and asking for a manual meter reading. On June 28, 2001, Mrs.
18 Read provided APS with a manual read.

19 On July 26, 2001, APS sent Mrs. Read a postcard stating that her meter could not
20 be read because the gate was locked and asked her to provide APS with a manual
21 read. On July 30, 2001, Mrs. Read called APS and provided a manual meter read.
22 On August 24, 2001, APS sent Mrs. Read a postcard stating that the meter could
23 not be read because the gate was locked and asked her to provide APS with a
24 manual read. Mrs. Read did not respond to this request.
25

1 APS sent a letter to Mrs. Read on November 2, December 5, December 13 and
2 December 21, 2001, advising her that APS could not read her meter because the
3 access gate was locked and asking her to call APS. On December 28, 2001, APS
4 sent a postcard to Mrs. Read, advising her for a fourth time that month that APS
5 could not access her meter. Mrs. Read did not mail back the postcard with the
6 requested manual reading, or respond to the letters.

7 APS also sent a postcard to Mrs. Read requesting a manual meter reading on
8 January 30, 2002. Mrs. Read did not respond. Mrs. Read began to provide access
9 to her meter after April 2002 and most of her bills after that point were based on
10 actual reads. If the bill was estimated after that point, however, APS sent Mrs.
11 Read a postcard advising her that APS could not access her meter, and also left a
12 door hanger on her door.

13 Thus, contrary to BWG's conclusion, APS made numerous and repeated attempts
14 to make arrangements to access Mrs. Read's meter, but its numerous attempts to
15 do so were simply unsuccessful.

16 **Q. DID COMPLAINANT REQUEST AN EXTENDED PAYMENT PLAN TO**
17 **PAY HER BILLS?**

18 A. No. BWG also criticizes the fact that APS did not offer Mrs. Read the option of
19 paying her bills via an extended payment plan. Mrs. Read routinely paid her bill,
20 whether based on estimated or actual reads, and thus there was no reason to offer
21 her such a payment plan. However, had she made such a request, it no doubt
22 would have been granted. Customers are routinely informed in APS
23 advertisements and in periodic mail inserts that a balanced payment program is
24 available if a customer wishes to pay an essentially level monthly bill. (In fact,
25 more than 20% of APS' residential customers participate in APS' "Equalizer"
plan.) From my review of the customer notes pertaining to Mrs. Read's account, it

1 does not appear that Mrs. Read requested a balanced or an extended payment plan
2 with respect to any of the larger bills that she received. I also note that on several
3 occasions Mrs. Read did remit several payments totaling thousands of dollars. It
4 would appear that Mrs. Read did not require or desire a balanced or extended
5 payment plan. If Mrs. Read had requested an extended payment plan, APS would
6 certainly have granted that request.

7 **Q. DO YOU HAVE ANY OTHER RESPONSE TO THE READ COMPLAINT**
8 **AND TESTIMONY FILED WITH THE COMMISSION?**

9 A. It is important to note that Complainant did not file any actual testimony with the
10 Commission. Instead, Complainant only filed the depositions of a number of APS
11 employees who had been deposed by Complainant's counsel. In terms of the Read
12 Complaint filed with the Commission, however, the BWG report completely
13 rebuts Complainant's allegation that APS "systemically deceived and
14 overcharged" Complainant. Indeed, as set forth in APS witness David Rumolo's
15 testimony, on average, APS underestimated customers who received estimated
16 bills. Moreover, APS denies that it submitted misleading or incomplete reports
17 about its estimating methods to the Commission.

18 **Q. DO YOU HAVE ANY CONCLUDING REMARKS?**

19 A. In summary, as set forth above, APS is already taking virtually all of the steps
20 recommended by BWG. As to the Read Complaint, the issues raised by BWG lack
21 foundation and are simply erroneous.
22
23
24
25

Billing Services Training Summary

Intro to CIS – Basic training provided to all CIS Users

- Log on
- Navigating CIS
- Rep Direct

Finding Information – Also basic training provided to all CIS Users

- Search Methods
- Locating Account Information
- On Demand
- Comments, Notes & Complaints

Service Plans and Metering

- Calculate dollar amounts for the active residential service plans.
- Calculate dollar amounts for the E-32 General Service plan.
- Perform a variety of rate comparisons on the different service plans available.
- Review the meter type/service plan validation as well as the meter type/meter code validation.
- Review the criteria used to determine Full Scale Demand on a meter.

Service Orders

- In this module associates learn to use CIS to process service orders to area service, meter reading and the meter shop.

Policies and Procedures

- Review the ACC Terms & Conditions for Back Billing and the acceptable exceptions.
- Review the steps required to document “no access” accounts.
- Discuss the procedure for rebilling No Access accounts.
- Practice prorating reads for multiple months rebilling.
- Review the steps required for working Unidentified Usage accounts.
- Review the process for notifying Meter Reading of unable to Locate and Wrong Route accounts.
- Review the steps required to analyze an account for a possible dead meter.
- Review the steps required to work a variety of Meter Exchange exceptions.

Form Letters

In this module associates view the different form letters that are used to inform customers of different billing/rebiling situations that have occurred on their account.

- Access Word and practice creating a customer letter using the Billing Templates.
- Access the Billing Services Letter Printer Web site and practice creating a web letter.

Billing Services Training Summary

Miscellaneous Transactions

Participants practice issuing statements of account, routing bills and adding reads to Usage History

- Practice the Hardcopy Route function. (routing the customer statement to verify accuracy prior to mailing)
- Practice entering Memo Reads. (memo reads are entered off-cycle – usually customer provided reads not used for billing)
- Identify an Irregular User. (a customer who does not have consistent usage – may be an irrigation well, winter visitor, etc.)
- Review the SA Maintenance worksheet (to verify accuracy of service plan and user type; irregular or normal).

Billing Exceptions

- Review the criteria CIS uses to create an exception.
- Review the In Basket function.
- Review the Billing Exception workflow.
- Practice analyzing accounts to determine a billing resolution.
- Practice changing a meter read by using the Usage Detail page.
- Practice canceling & rebilling prior month's consumption when a read error has occurred.
- Review the Post Billing Exception window process.
- Includes 3 days OJT working simple exceptions

Billing Service Requests

Participants perform the necessary steps to complete Billing Services Requests from other areas.

- Open a Billing Service Request from an In Basket.
- Analyze the request and the account.
- Perform necessary adjustments.
- Complete the Billing Service Request.

Reports

Participants will learn about the different reports that Billing Services receives daily and what steps need to be taken to resolve the situation.

- Practice working the New or Found Electric Meter report.
- Practice working the Meter Exchange Information report.
- Practice working the Removed Meters report.
- Practice working the Unposted Meter Reads report.
- Review the Service Plan to Meter Type report.
- Review the Zero Consumption report.

AMR/AMS Overview

Over the past several years, APS has evaluated Automatic Meter Reading (AMR) and Advanced Metering Systems (AMS) technologies.¹ In the past, this review has been limited to kilowatt hour-only meters because the technology had not advanced sufficiently to address demand meters and/or time of use (TOU) meters. APS conducted pilots – very limited in scope -- of certain kWh-only applications to determine the feasibility for APS' customer base.² While reading kilowatt-hour only meters using an automated process offered some time savings, these savings were quickly negated when customers within the pilot change to TOU or demand rates. When TOU or demand meters were interspersed in the midst of a kWh AMR route, the efficiencies of reading the route remotely quickly evaporated because the meter reader still had to physically probe the TOU meters. During the last couple of years, however, technological advances have created potential AMS solutions for APS' service territory.

APS is currently evaluating two AMS technologies, developed by Elster EnergyAxis and PowerOneData, respectively. In the Fall of 2004, APS installed approximately 480 Elster meters and 455 PowerOneData meters in Phoenix residential areas. The two pilots

¹ APS uses the term "AMS" to distinguish these technologies from the more generic "AMR" term. "AMR" typically includes systems such as monthly "drive-by" energy-only solutions, which are solely intended to gain efficiencies in the meter reading function. The goal of "AMS," on the other hand, is not only to make meter reading more efficient, but to also provide additional daily consumption information and remote, as-needed access to the utility's meters.

² As previously stated in the Direct Testimony of Tammy McLeod, APS is unique in terms of the number of TOU customers and the number of residential demand accounts.

Schedule TM-1R

are being evaluating on an ongoing basis. There are a number of issues arising out of the pilot programs that must be resolved before APS reaches a final decision as to the feasibility of AMS meters.

TESTIMONY OF ALAN KESSLER

On Behalf of Arizona Public Service Company's

Application for Declaratory Order

Docket No. E-01345A-03-0775

January 24, 2005

TABLE OF CONTENTS

I. INTRODUCTION	1
II. SUMMARY OF TESTIMONY.....	3
III. SURVEY OF METER READING AND BILL ESTIMATION PRACTICES	6
IV. SURVEY OF METER READING AND BILL ESTIMATION REGULATIONS.....	8
V. IMPACT OF APS' USAGE ESTIMATION PROCEDURES	12
VI. REVIEW OF THE BWG REPORT.....	15
VII. THE AVIS READ COMPLAINT.....	20

1 I. INTRODUCTION

2
3 Q. Please state your name and business address.

4 A. Alan Kessler, 244 N. Main Street, Concord, NH 03301.

5
6 Q. By whom are you employed and in what capacity?

7 A. I am a Managing Director of Accion Group, Inc., a consultancy providing
8 regulatory, strategic, operational and financial advisory services to a broad
9 range of clients, including electric, gas, and water utilities, regulatory
10 agencies, and other organizations involved in utility-related matters. My
11 responsibilities include coordinating our practice activities relating to
12 services we provide in planning and regulatory matters, as well as in
13 business organizational issues.

14
15 Q. Please discuss your educational background.

16 A. I graduated from the City College of New York in 1969 with a B.S. degree
17 in Economics. In 1975, I was awarded a J.D. degree by Capital University.
18 I have also done graduate studies in Economics at the Massachusetts
19 Institute of Technology. Since graduation, I have continued my education
20 by taking professional education courses in finance, law, and economics.

21
22 Q. Please discuss your professional experience.

23 A. After graduation from the City College of New York, I was employed by the
24 Columbia Gas System as an economic analyst assigned to financial and
25 asset acquisition issues. Subsequent to law school, I was employed by
26 the Public Utilities Commission of Ohio as a hearing officer where I
27 presided over rate, fuel clause, and quality of service cases for electric,
28 gas and telephone companies. In 1978, I joined the law department of

1 Ohio Power Company where I was responsible for all of the company's
2 regulatory litigation. I was promoted to General Counsel in 1984. In 1987,
3 I joined the Utilities Consulting practice of Ernst & Young, where I led
4 several management audits and prudence reviews. I also focused on
5 advising clients on issues related to mergers and acquisitions and
6 reorganizations of financially distressed utilities. In 1998, I joined Deloitte
7 Consulting, specializing in mergers and acquisitions and regulatory
8 matters. In 2002, I co-founded Accion Group, Inc., my current employer.

9
10 **Q. Have you ever testified before any regulatory agencies prior to this**
11 **testimony?**

12 **A.** Yes. I have previously testified before the Arizona Corporation
13 Commission (Commission) and before the Vermont Public Service Board,
14 the New Hampshire Public Utilities Commission, the Public Utilities
15 Commission of Ohio, and the Federal Energy Regulatory Commission
16 (FERC). Additionally, I have testified on utility-related matters in
17 bankruptcy court and before the New Hampshire and Ohio legislatures. I
18 have also advised clients on regulatory matters before the utility regulatory
19 authorities of Alaska, Georgia, New York, Michigan, Missouri, Kansas,
20 Virginia, Pennsylvania and California.

21
22 **Q. Would you please describe your role in this proceeding?**

23 **A.** Accion Group was originally retained by APS to conduct a survey of utility
24 practices concerning meter reading and bill estimation methodologies.
25 We were asked to evaluate APS' reading and estimating practices that
26 were in use over the past several years. Finally, we were also asked to
27 review and comment on the allegations presented by Avis Read in a

1 Complaint filed with this Commission on September 9, 2004 and, if
2 required, to evaluate other issues that might be presented by the
3 Commission Staff or other parties during that proceeding.

4 I directed Accion Group's review and, working with other Accion Group
5 personnel and personnel from The Ascent Group, who conducted the
6 survey of meter reading and billing practices, prepared the attached
7 Report: *Independent Assessment of Meter Reading and Bill Estimation*
8 *Practices* (Independent Assessment). See: Schedule AK-1R.

9
10 **Q. What is the purpose of your testimony?**

11 A. The purpose of my testimony is to present and summarize the findings of
12 our reviews of the meter reading and billing practices of utilities in the
13 United States, to present our findings regarding the rules and regulations
14 enacted by regulatory commissions in other states regulating utilities'
15 metering and billing practices, to present our analyses of the impacts on
16 APS' customers of APS' methodologies for estimating bills, to address the
17 findings of the Barrington-Wellesley Group (BWG) in its Report filed in this
18 case on December 28, 2004 (BWG Report) and to also address several of
19 the allegations contained in the Avis Read complaint.

20
21 **II. SUMMARY OF TESTIMONY**

22
23 **Q. Would you please summarize your testimony?**

24 A. In conducting our review, we found that APS has in place meter reading
25 and billing practices that are consistent with the generally used practices
26 of other companies in the utility industry. We found that APS employs
27 approaches to managing these two important functions that utilize many of

1 the best practices found in the industry. In many areas APS meter
2 reading practices exceed the average performance levels attained by the
3 panel of 39 companies we surveyed in November and December of 2004.
4 We also found that neither the utility industry in general, nor Arizona
5 utilities in particular, have standard procedures for estimating either
6 energy use (kWh) or demand (kW). Interestingly, APS is the only utility
7 with a significant number of residential customers on a demand rate and,
8 thus, the only utility with the routine need to estimate demand for
9 residential customers.

10 In surveying the rules and regulations adopted by regulatory commissions
11 in other jurisdictions, we were unable to find any rules or regulations which
12 dictated a specific methodology for estimating a customer's bill in the
13 event a meter could not be read, or in the case of an erroneous or invalid
14 meter reading.

15 Next I discuss the results of analyses Accion Group conducted of the bill
16 estimation procedures APS has utilized since it implemented its current
17 Customer Information System (CIS) in 1999. Our analyses revealed that
18 on average over the five-year period considered, the average estimated
19 bill understated the amount owing by almost \$13.00, and that more than
20 58% of all estimates were for less than what was probably consumed.

21 Thus, we determined that APS' approach to estimating both demand and
22 energy consumption appears to be reasonable and appropriate. To the
23 extent that APS practices demonstrate any bias, we believe them to be
24 conservative and have the net effect of underestimating customers'
25 obligations.

1 In reviewing the allegations in the Read Complaint, I understand that the
2 Complaint alleges Ms. Read was "deceived and overcharged" by APS. As
3 noted above, our analyses clearly demonstrate that APS' approach to
4 billing both estimated consumption and demand tends to undercharge,
5 and we saw no indication that Ms. Read had been overcharged on either
6 of her accounts when APS estimated those accounts. Moreover, our
7 review of the history of Ms. Read's account does not support the
8 conclusion that APS made any attempt to "deceive" Ms. Read or any other
9 customer regarding the issuance of estimated bills.

10 We also reviewed the BWG Report and note that it tends to focus on
11 issues that existed during a period of time when APS was transitioning
12 from an older, inadequate CIS to a newer, more functional one, and
13 makes recommendations to remedy problems that APS long ago resolved.
14 For example, our review, like that of BWG, found the CIS transition in
15 1999 to have been disruptive. However, we also found that virtually every
16 utility that has implemented a new CIS experienced significant difficulties
17 in the process. Furthermore, we think that BWG made several of its
18 recommendations based on information taken out of context and that this
19 may leave the impression that relatively minor or infrequently experienced
20 situations are endemic to APS' overall performance. And while BWG
21 correctly observed that several APS practices are different from the
22 practices of other utilities, it presented this "fact" without disclosing the
23 corollary "fact" that none of the comparator utilities are consistent with
24 each other. This out of context presentation distorts the facts and leaves
25 the unfounded impression that APS' practices are inappropriate or
26 otherwise fail to meet some standard practice used in the industry.
27 Finally, if APS were to adopt the BWG recommendations that have not

1 already been implemented, I do not believe that they will either
2 significantly improve APS' performance or enhance APS' customer
3 satisfaction.

4
5 **III. SURVEY OF METER READING AND BILL ESTIMATION PRACTICES**
6

7 **Q. What was the purpose of the survey of meter reading and bill**
8 **estimation practices Accion Group performed?**

9 **A.** During November and December 2004, Accion Group, in partnership with
10 The Ascent Group and at the request of APS, conducted a survey of
11 meter reading and estimated billing practices of utilities in the United
12 States. The survey had three purposes: to determine if there were
13 standard practices in use in the industry, to review whether APS was
14 employing good utility practices, and to assist in the evaluation of the
15 merits of the related allegations made by Avis Read in her Complaint filed
16 with the Commission on September 9, 2004.

17
18 **Q. How many utilities participated in your survey?**

19 **A.** Including 12 specifically targeted companies, 39 utilities participated in our
20 research. Nearly all companies participated in detailed telephone
21 interviews of meter reading and billing personnel designed to examine
22 meter reading practices, no-access resolution approaches, and billing
23 estimation procedures. Additionally, participants completed on-line
24 questionnaires.

1 **Q. Please describe the general findings of that survey?**

2 **A.**As described more fully in the report, APS has employed meter reading
3 practices that are consistent with the practices generally employed in the
4 industry. All participants in our study noted that access to meters is a
5 continuing problem. APS' practices to secure access to the meter are as
6 comprehensive as any of the utilities surveyed. Our survey also found
7 that there is no standard approach to calculating estimated usage by
8 customers in those instances where a meter read was unavailable for
9 whatever reason.

10

11 **Q. How did other utilities estimate bills when meter readings were not**
12 **available?**

13 **A.**All of our participants based estimated energy usage on some
14 combination of historical data, if available, including data from one or more
15 prior months, and data from prior years. Various utilities computed
16 estimates using factors such as weather and seasonal load factors along
17 with some form of multiplier.

18 Virtually none of our participants estimated demand. Typically, demand
19 meters are used for large commercial and industrial accounts where
20 utilities reported meter access is rarely unavailable. In those instances
21 when a valid read was not available, they reported that follow-ups within
22 the read window were attempted. This is consistent with APS' practices
23 for large commercial and industrial accounts. However, unlike APS, our
24 participants also reported that they do not typically have demand rates for
25 residential customers or install demand meters on residential accounts
26 and therefore do not need to estimate residential demand. In those few

1 instances where demand on a residential account needs to be estimated,
2 there was no consistent approach to calculating an estimate.

3
4 **Q. Does APS use historical data to estimate usage?**

5 **A.** Yes. APS, like most other utilities, uses customer specific historic energy
6 usage data to estimate usage, if it is available. In the most common case,
7 APS first calculates the customer's average daily use during the previous
8 six months of the same season (winter/summer) and then multiplies that
9 average by the number of days in the billing cycle to estimate energy use.
10 If six months of same season history is not available, APS will use the
11 previous month's data in the same season or, in some cases, premise
12 data if the customer has not resided at the location long enough to have a
13 history.

14 To calculate estimated demand, APS uses the customer's estimated
15 energy usage and applies a time factor (hours in the billing period) and a
16 class average load factor to determine the estimated KW demand. The
17 class average load factor is based on APS load research data. David
18 Rumolo discusses APS' estimation procedures in detail in his Direct
19 Testimony filed in this case.

20
21 **IV. SURVEY OF METER READING AND BILL ESTIMATION REGULATIONS**

22
23 **Q. Would you please describe the portion of the Independent Survey**
24 **regarding meter reading and bill estimation regulations?**

25 **A.** Accion Group conducted a survey of state regulatory authorities to
26 compare their rules and regulations dealing with meter reading and bill

1 estimation with the practices used in Arizona by APS. The survey
2 targeted 12 states that had experience with deregulation.

3 The survey was conducted in two phases. First, the web sites of each
4 targeted regulatory authority were reviewed. This review was conducted
5 to identify, where possible, the policy and practices the regulatory
6 authority had enacted concerning meter reading and bill estimation. The
7 web site review also identified what information was available to
8 consumers about meter reading and bill estimation. The second phase of
9 the survey was conducted by telephone, with regulatory personnel about
10 the experience of the regulatory authority with meter reading and bill
11 estimation. The telephone survey also explored the frequency and nature
12 of customer complaints regarding metering and billing issues. Our sample
13 included regulatory Commissions from different regions of the country.
14 We also surveyed a mixture of large and small states to include
15 information on urban and rural customer territories.

16
17 **Q. Have you drawn any conclusions from the results of that survey?**

18 **A.** Our findings demonstrate that there are no standard practices or
19 regulations used by regulators and that the procedures used by APS are
20 consistent with the general requirements used by other state regulatory
21 agencies.

22 Our survey found that, as a general matter, meter reading and bill
23 estimation are not issues given much consideration in rules and
24 regulations promulgated by regulatory authorities. Indeed, when
25 telephoning regulatory authorities it was common for us to have difficulty
26 finding a staff person with any knowledge, much less familiarity with,
27 meter reading or bill estimation regulations. In some states, we were

1 unable to find any formal regulations addressing bill estimation and meter
2 reading.

3

4 **Q. Are you suggesting that utilities are not obligated to read meters?**

5 **A.** No, but we did find that the obligation to read meters ranged from
6 "whenever possible", and the requirement to "strive" to obtain regular
7 monthly readings, to, at the other extreme, a requirement that meters be
8 read at least once every twelve months.

9

10 **Q. Do regulations in other states permit utilities to estimate**
11 **consumption for billing purposes?**

12 **A.** Yes. All of the regulatory authorities surveyed recognized that
13 circumstances would prevent the reading of every meter during every
14 billing cycle. The most common reasons, although not the only reasons,
15 for permitting estimates are denied access and inclement weather.

16

17 **Q. What did you find with regard to the regulation of meter reading?**

18 **A.** We found no consistency in the number of months permitted between
19 actual meter reads when access to the meter was not available either
20 through action of the customer or other circumstances. Similarly, there
21 does not appear to be a standard for the number of months without
22 access before utilities are permitted to terminate service if they cannot
23 access the meter. Most state regulations are silent on the point at which
24 termination is permitted. Others range from four months to eight months.

1 **Q. Did you find regulations that addressed estimated billing practices?**

2 **A.** Yes. As with meter-related issues, the regulation of estimated bills is
3 varied. At one end of the spectrum, we found one state does not limit the
4 number of months of estimated bills. Another state we reviewed limits
5 estimated bills to one month, except where meter access is denied by the
6 customer. The procedures for estimating bills, while not typically detailed,
7 also vary among the states. Most state regulations, however, are silent on
8 how bills are to be estimated. Moreover, our survey found no state
9 regulation that cancelled a customer's obligation to pay an "estimated" bill
10 if the recognized estimation procedures were not followed, as demanded
11 by Ms. Read.

12

13 **Q. Did you find any standard approach to estimating demand when**
14 **meter readings could not be obtained?**

15 **A.** No. Our survey specifically addressed the treatment of estimating
16 residential demand meters. We found that not a single state commission
17 made any provisions for estimating demand when a reading was
18 unavailable. Even where time of use (or time of day, as they are known in
19 some states) meters are in use, we were unable to find specific provisions
20 for estimating TOU usage in order to estimate bills when the meters could
21 not be read.

22

23 **Q. Have you drawn any conclusions based on the findings of this**
24 **survey?**

25 **A.** From our survey, it is apparent that there is little consistency among states
26 when dealing with meter reading and bill estimation. While regulators
27 expect meters to be read and actual bills rendered on a regular basis, all

1 states recognize that circumstances will prevent some meters from being
2 read. All states, however, appear to leave it to the regulated utilities to
3 establish specific meter reading policies and usage estimation practices to
4 be used when actual consumption data is unavailable.

5 Regarding the estimation of residential demand when actual meter data is
6 unavailable, none of the states surveyed regulated the procedures
7 employed by utilities in those states for estimating demand. From our
8 discussions with regulatory staffs, it is clear that other state regulators do
9 not typically authorize rates for residential customers that contain a
10 demand charge or use demand meters as a form of demand side
11 management. Accordingly, the issue of estimating demand billings when
12 meter readings are unavailable is unique to Arizona.

13

14 **V. IMPACT OF APS' USAGE ESTIMATION PROCEDURES**

15

16 **Q. Did Accion Group evaluate the impact of APS' usage estimation**
17 **procedures on APS customers who received estimated bills?**

18 **A.** Yes. We found it to be conservative, appropriate and tended to
19 underestimate consumption. We found that APS' basic procedures for
20 estimating both energy and demand have not changed over time although
21 APS has refined several of the factors used in its calculations to reflect
22 current load research data and to correct several errors that APS
23 identified. Each of these changes refined APS' estimates and resulted in
24 estimates that more closely tracked the actual consumption of its
25 customers as a group.

1 Q. Please describe how Accion Group evaluated APS' estimation
2 procedures.

3 A. We first reviewed the basic algorithms used in APS' CIS system and the
4 factors APS applied to calculate estimated usage. We observed that
5 since 1999, the year APS initiated use of its current CIS system, the basic
6 computational procedures used to produce estimated bills have not
7 changed. We discussed with APS personnel the various factors used in
8 the procedures and the adjustments to these factors that have been used.
9 Those changes reflect identified changes in customer load factors and
10 correct the hours and days used to compute Time of Use estimates to
11 conform to tariff terms.

12 Accion Group next reviewed the study of the impacts of estimation
13 methodologies conducted by APS, which study was also presented in the
14 Direct Testimony of David Rumolo. We observed that the refinements and
15 corrections to the factors used in APS' procedures have improved APS'
16 ability to accurately estimate usage and the current method being
17 employed provided the most neutral customer impact, an annual
18 underestimation on estimated bills of approximately \$432,000.

19 To confirm the APS study, Accion Group designed a second study that
20 utilized a universe of actual meter reads covering the period September
21 1999 through August 2004. A total of 956 bills were selected to be
22 estimated. Both kWh and, when the selected bill was from a rate including
23 a demand charge, kW estimates were computed using the formula in use
24 by APS at the time the original bill was prepared. Each estimate was then
25 "rebilled" based on rates then in effect.

1 **Q. What were the results of Accion Group's study?**

2 **A.** Our study found that APS' procedures underestimated both energy usage
3 and demand. APS estimated kWh as a percent of actual kWh metered
4 followed a statistically normal distribution with approximately 48% of all
5 estimates being less than actual and approximately 65% of all estimates
6 equal to or less than 110% of actual. We also found that APS' methods
7 for estimating kW demand demonstrated a marked tendency to
8 underestimate demand. Nearly 80% of all samples calculated were equal
9 to or less than 100% of the actual demand metered on the sampled bills.
10 When billed the estimates resulted in 58% of all bills being for less than
11 the actual bills that had been rendered. On average, estimated bills were
12 about \$13.00 lower than the actual bills. Only in rate code E-10 did we
13 observe any net overbilling and it was for an average overbilling of \$1.26
14 per bill or about 1.7%. It should be noted, however, that this tariff is for
15 energy-only and is self-correcting in succeeding months, as discussed in
16 our Independent Assessment.

17
18 **Q. Will any estimation method produce overestimates?**

19 **A.** Of course. It will also produce under-estimates. In fact, it is statistically
20 unlikely that any estimate will be "dead on" to what would have been billed
21 as a result of an accurate read of a properly functioning meter. What is
22 important then is whether an estimation method produces reasonable
23 approximations of such meter reads in the aggregate. APS' estimation
24 procedures during the 1999-2004 period meet this criterion.

25

1 **Q. Would it be reasonable to attempt to correct the inevitable over-**
2 **estimates created by an estimation procedure without equal**
3 **consideration of under-estimates?**

4
5 **A. No. It would exacerbate what, in the case of APS, is already a bias**
6 **toward under-collection.**

7
8 **Q. What have you concluded based on those studies?**

9 **A. Based on our findings, we concluded that APS' estimation procedure is**
10 **conservative and serves the best interests of the Company's customers**
11 **who receive estimated bills. As a group, we see no evidence that**
12 **customers are harmed. Furthermore, APS' periodic refinements of the**
13 **factors used to calculate the estimates have, over time, improved the**
14 **accuracy of those estimates. We believe APS' use of historic seasonal**
15 **average usage and class load factors has enabled APS to develop**
16 **estimates that are fair and reflect the volatility of individual customer**
17 **usage and demand that APS experiences as a result of Arizona weather**
18 **patters and customer requirements.**

19
20 **VI. REVIEW OF THE BWG REPORT**

21
22 **Q. Did you review the BWG Report submitted on December 28, 2004 by**
23 **the Commission Staff's Consultant, BWG?**

24 **A. Yes I did, and while it presents many correct facts and valuable**
25 **observations, I believe it is seriously flawed.**

1 **Q. In what ways do you believe the Report is flawed?**

2 **A. The BWG Reports presents 15 recommendations that are not all**
3 supported by the facts and findings noted in the Report. Many are based
4 on circumstances that once existed, but that have changed as APS
5 improved its internal operating processes. Other "facts" are presented out
6 of context and in a manner that distorts the issues before this
7 Commission. Finally, BWG has recommended that APS be required to
8 adopt certain operating procedures, reporting requirements, training and
9 monitoring practices that are unnecessary either because APS already
10 adopted and implemented practices that accomplished the same task as
11 the BWG recommended changes, or which, if adopted, will result in no
12 change in APS operations and some will cause APS to incur costs with no
13 measurable benefit for APS' customers or shareholders.

14

15 **Q. Can you cite an example of a "fact" that once existed but has**
16 **changed?**

17 **A. In its Report at p. I-9, BWG spends considerable time discussing the**
18 billing problems APS had as it transitioned to its current Customer
19 Information System (CIS) from its older, inadequate system. While it is
20 true that APS was unable to produce some bills during that transition, the
21 problems encountered have been resolved, and the issue of APS' ability
22 to produce bills is moot. The BWG Report may leave the impression that
23 the problems still exist, which is simply untrue. Moreover, nowhere in the
24 Report does BWG mention the fact that APS' problems during this CIS
25 transition were not unique to APS. Virtually every utility that has installed
26 a new CIS during the last decade has encountered unexpected difficulties
27 that delayed and confused otherwise well-planned implementations.

1 **Q. Can you cite any facts that were presented out of context?**

2 **A.** Certainly. BWG observed at p. I-9 that APS estimates both energy usage
3 and demand in a manner that is different than the manner used by other
4 Arizona utilities. While that is true, taken alone, it can only serve to
5 mislead a reader into believing that APS fails to follow some non-existent
6 industry standard practice. What BWG fails to note is that even the other
7 Arizona utilities do not use a standard approach to estimating energy
8 usage, and virtually no other Arizona utility estimates residential demand.
9 While those facts are evident in the BWG tables describing the information
10 it received from other Arizona utilities, BWG fails to discuss this aspect of
11 the issue at all. BWG also had before it responses from 10 utilities outside
12 of Arizona, none of which indicated that they have any demand-billed
13 residential customers. Of course, this means none used a class average
14 load factor to estimate demand for those non-existent customers. From
15 this, BWG concluded that *"there are insufficient numbers of electric utilities*
16 *that have demand-billed residential customers to determine whether the*
17 *use of class-average load factors to estimate demand is a generally*
18 *accepted industry practice."* In proper context, this set of facts reveals
19 that APS' need to estimate residential demand is unique and that there is
20 no industry standard approach to estimating residential demand.
21 Obviously, with no standard practice against which to evaluate APS'
22 approach, one should look to see if the results of APS' method are
23 appropriate. BWG has not found that APS' estimates were excessive and,
24 to the contrary, found, in the case of Ms. Read, that the estimates were
25 too low. Our analyses indicated that APS' approach to estimating usage
26 is conservative and has improved over time. Therefore, BWG's finding
27 that APS' practices in this area "vary from the practices in place at other

1 electric utilities in Arizona" in response to the question, "Are APS'
2 practices consistent with those of other Arizona electric utilities?" while
3 true, is completely misleading.

4

5 **Q. Can you cite any of BWG's recommendations which you believe to**
6 **be unnecessary?**

7 **A.** While BWG's specific recommendations will be addressed in detail by
8 other APS witnesses, I would note that BWG recommendations such as
9 BWG's proposed "independent audit" of APS' practices and processes,
10 which BWG found to be generally good at this time, is unnecessary.
11 Similarly, BWG's recommended revision to the "No Access Report" fails to
12 recognize that the information proposed to be created in that report is
13 already available to APS personnel in another format and even if adopted
14 would not change the way APS operates.

15

16 **Q. You stated that some BWG recommendations would impose costs**
17 **on APS but would provide no measurable benefits. Can you**
18 **describe a recommendation that falls in this group?**

19 **A.** Recommendation III-7 proposes a pilot project to evaluate scheduling
20 meter reads with chronic no-access customers. As noted in our Report,
21 scheduling appointments with no-access customers is used by only a
22 small percentage of utilities because it is the customer's responsibility to
23 provide access to the company's meter and because the process of
24 scheduled visits is costly and difficult to manage.

1 **Q. Do you have any other observations regarding the BWG Report?**

2 **A.** Yes. Generally the context of the BWG Report and its findings are
3 consistent with the findings of Accion Group's review of APS' practices
4 and the practices of other utilities. We also concur with BWG that APS'
5 practices are generally consistent with the rules and regulations in other
6 jurisdictions. We agree that APS manages its metering, billing and
7 estimation processes effectively. As noted earlier, we have found fault
8 with the BWG Report, however, in our belief that BWG failed to present
9 those facts and findings in an objective way and drew conclusions and
10 made recommendations that did not follow from the facts as they now
11 exist.

12

13 **Q. Do you have any recommendations for the Commission?**

14 **A.** Yes, I do. After our review, we must conclude that the recommendations
15 of BWG are not supported by their findings, and are at odds with our
16 review of current APS practices. Accordingly, we recommend that the
17 Commission not adopt the recommendations. Instead, we recommend
18 that the Commission recognize that APS meter reading and bill estimation
19 procedures are unique, due to the existence and number of residential
20 demand meters, and because of the number of residential meters in
21 "grandfathered" locations that are inaccessible to meter readers. Finally,
22 we recommend a finding that APS exceeds industry standards for meeting
23 meter reading and billing obligations, and that over time APS has refined
24 its practices to minimize the need to estimate bills.

25

1 **VII. THE AVIS READ COMPLAINT**

2
3 **Q. Have you reviewed the Avis Read Complaint filed in this case?**

4 **A.** Yes I have and I would like to address the two general propositions put
5 forth in that Complaint.

6 First, the Complaint alleges that Ms. Read was harmed as a result of APS
7 sending estimated bills to her. Yet, we do know that because her meters
8 were ultimately read, she was in fact billed for exactly the amount of
9 energy she used on her non-demand account, and there is every
10 indication that her demand account was likewise underbilled on those
11 occasions when the account was estimated. The BWG report agrees with
12 these conclusions. We also know that on average, APS' method for billing
13 both energy and demand tended to underestimate usage of both. From
14 those facts, I believe it is most likely that her usage was underestimated
15 and she would have been liable for additional charges had her meter been
16 accessible and read regularly. Additionally, contrary to the claim that she
17 was harmed, because Ms. Read's estimates were for substantially less
18 than what she finally was obligated to pay, she actually benefited from
19 APS' policies in that she had the use of funds that were ultimately due
20 APS for several months.

21 Secondly, the Complaint requests that the Commission order APS to
22 "disgorge ill-gotten profits" earned while APS was not authorized to issue
23 estimated bills. While APS' witnesses will address the issue of whether
24 APS has complied with the Commission Rules and Regulations regarding
25 estimated bills, I would like to address the practical merits of this claim and
26 requested relief.

1 First, as I previously stated, APS' estimations tend to underestimate actual
2 usage and have resulted in significant under-billings during the last six
3 years. Accordingly, there are no "ill gotten profits." Rather there have
4 been revenue shortfalls created in part by Ms. Read's failure to abide by
5 the terms and conditions of APS' tariffs regarding meter access. Those
6 shortfalls have to some extent become the responsibility of customers who
7 do provide APS access to its meters. Accordingly, this Commission
8 should take care in considering the requests for relief in the Read
9 Complaint or the recommendations made by BWG in its evaluation of the
10 merits of the Read Complaint. Any result which would inhibit APS' ability
11 to bill customers in a timely and accurate manner, whether it is based on
12 an actual meter reading or on an appropriate estimate, should be avoided.

13
14 **Q. Does this conclude your testimony?**

15 **A.** Yes it does.
16
17
18

INDEPENDENT ASSESSMENT OF
METER READING AND
BILL ESTIMATION PRACTICES

Prepared by



on behalf of

Arizona Public Service Company's
Application for Declaration Order
Docket No. E-01345A-03-0775

January 24, 2005

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TABLE OF CONTENTS

EXECUTIVE SUMMARY AND CONCLUSIONS.....	1
HOW THE INDEPENDENT ASSESSMENT WAS CONDUCTED.....	5
UTILITY METER READING AND BILL ESTIMATION PRACTICES	5
SURVEY OF METER READING & ESTIMATED BILLING.....	8
Scope of Survey.....	8
Study Objectives.....	11
Study Findings.....	12
Meter Reading & Meter Access	15
Billing & Estimation	21
Study Observations.....	23
Addressing Inaccessible Meters	33
Estimating kWh Usage	43
Estimating Demand.....	45
METER READING AND BILL ESTIMATION REGULATION.....	47
IMPACT OF BILL ESTIMATION PROCEDURES.....	53
REVIEW OF STAFF CONSULTANT'S REPORT	58

EXECUTIVE SUMMARY AND CONCLUSIONS

To address the allegations contained in the Complaint filed by Avis Read at the Arizona Corporation Commission (Commission or ACC) on September 9, 2004, and any issues that might be raised by the Staff of the ACC in that proceeding, Accion Group was retained by Arizona Public Service (APS) to provide an independent assessment of the meter reading and billing practices of the company. From our review, we believe the recommendations of the consultants to the Staff are without merit and, if adopted, would needlessly add expense and regulatory burden, without any benefit to customers. Further, our review found the assertions of Avis Read to be unfounded and, at most, an isolated, non-recurring incident which does not justify new reporting requirements.

The review was undertaken to provide APS with an unbiased opinion on whether:

1. APS bill estimating procedures comply with industry standards and result in appropriate billings to customers
2. APS customers are treated fairly relative to estimation practices
3. APS practices minimize the need for estimated bills to the extent practicable of APS bills (0.9% in Metro Phoenix) estimated in 2004.
4. Meter readers use good utility practices to obtain a meter read.

Our review consisted of six parts:

1. A survey of electric utility meter reading and billing practices of utilities across the country
2. A survey of meter reading and billing regulation in the United States
3. Statistical analysis of the impact of APS bill estimation methodologies
4. Review of the report prepared by Barrington-Wellesley Group (BWG) Staff consultants filed on December 28, 2004 (BWG Report)
5. Review of the Complaint filed by Avis Read with the Commission on September 9, 2004
6. Interviews and observation of APS' billing processes from meter reading through the issuance of bills.

From our review we determined that:

Estimation Conclusions

1. APS billing estimation practices are reasonable and have, over time, benefited its customers.
2. Although no single industry standard exists, either nationwide or in Arizona, APS billing and bill estimating practices for both energy and demand are consistent with good utility practices

in the electric utility industry and are appropriate for the company's unique service territory and rate structure.

3. APS has successfully reduced the number of estimated bills to the point where it is one of the better performing electric utilities. APS read 98.99% of its meters in 2004.
4. Customers on a tariff without a demand charge cannot be harmed by an estimated bill, because once an actual meter read is obtained the billing will be adjusted to reflect actual energy usage.
5. APS' method of calculating demand charges is reasonable and consistent with good utility practices.
6. As a group, APS under-bills its customers for demand charges when bills are estimated.
7. There is no consistent regulatory policy in the United States or in Arizona regarding bill estimating procedures or requirements.

Meter Reading Conclusions

1. The APS service territory with its extreme climates, wide range of customer density is unique and presents significant operating challenges to meter access.

2. The availability of Residential rates in Arizona, which contain a demand charge, is unique in the industry.
3. APS meter readers make appropriate efforts to obtain a meter reading from each meter during each billing cycle.
4. There is no consistent regulatory policy in the United States or in Arizona regarding meter reading procedures or requirements.

Conclusions About the BWG Report

1. The Staff consultants have not adequately or appropriately evaluated the APS meter reading, billing, and bill estimating practices.
2. Adoption of the Staff consultants' recommendations would increase APS' operating costs without a corresponding benefit to customers.
3. Adoption of the Staff consultants' recommendations would potentially reward customers who deny APS access to their meter and shift cost to other customers.

Avis Read Conclusions

1. There is no evidence that Avis Read was over-billed.
2. The remaining allegations of Avis Read's are unfounded.

HOW THE INDEPENDENT ASSESSMENT WAS CONDUCTED

We conducted a survey of meter reading and estimated billing practices of utilities in the United States. Also, we surveyed regulatory practices in the United States for meter reading and bill estimation. To fully understand APS practices, past and present, we interviewed APS personnel with responsibility for meter reading and billing. Our interviews included supervisors and personnel who provide meter reading and billing services. As part of these interviews, we visited the APS billing department and sat with different billing representatives as they reviewed estimated bills for customers where meter access was denied or unavailable. Also, we accompanied meter readers for two days as they attempted to read every meter. We witnessed their efforts to obtain a meter read, even when access to a meter was denied, and witnessed their actions when encountering a malfunctioning meter and a possible tampering situation. Finally, we reviewed the report prepared by consultants for the Commission.

UTILITY METER READING AND BILL ESTIMATION PRACTICES

As described more fully on the following pages, APS employs meter-reading practices that are consistent with the practices generally employed in the industry. All participants in our study noted that access

to meters is a continuing problem. APS' practices to secure access to the meter are as comprehensive as any of the utilities surveyed. Several companies we surveyed have, in recent years, begun to implement Automated Meter Reading (AMR) to, in part, to address this problem. APS has advised us that it is presently in the process of pilot testing AMR for its residential (single phase) customers, and may continue to study deployment of those meters for parts of its service territory.

Availability of such meters for general service customers remains an issue. Reliable and cost effective AMR demand and TOU meters are now becoming available. Significantly, our survey found that there is no standard approach in the industry to calculating estimated usage by customers in those instances where a meter read was unavailable for whatever reason. The characteristics of each service territory, such as population density and climate, significantly impact the specific factors used in the estimation methods employed by our survey participants.

All of our survey participants based estimated energy usage on some combination of historical data, where available, including data from one or more prior months, and data from prior years. APS was no different in that regard. Various utilities computed estimates using factors that considered weather, some form of multiplier or seasonal load factors.

None of our survey participants had a procedure for routinely estimating demand. Typically, demand meters are used for larger commercial and industrial accounts where utilities reported that meter access is usually available. In those instances when a valid read was not available, they reported that follow-ups within the read window were attempted. This is consistent with APS' practices for larger commercial and industrial accounts. We did note that because of the broad application of APS General Service Rate Schedule E-32, APS has more access issues on this rate code. Also, unlike APS, our participants reported that they do not typically have demand rates for residential customers or install demand meters on residential accounts and therefore do not need to estimate residential demand. In those few instances where demand on a residential account needs to be estimated, there was no consistent approach to calculating an estimate. In those few incidents where it was necessary to estimate residential demand, there was no uniform or consistent approach used.

Our findings identify APS as unique in its need to, and the extent to which it must, estimate demand on residential accounts. As noted later in this report, we believe APS' approach to estimating customer energy usage and demand is appropriate and equitable to all customers.

SURVEY OF METER READING & ESTIMATED BILLING

During November and December 2004, Accion Group, in partnership with The Ascent Group and at the request of APS, conducted a survey of meter reading and estimated billing practices of utilities in the United States. The survey was done to determine if APS employs good utility practices and to assist in the evaluation of the merits of the allegations made by Avis Read in her complaint filed with the ACC on September 9, 2004. More than a dozen U.S. investor-owned electric, gas, or electric and gas combination companies were targeted. We investigated how the surveyed companies resolve difficult meter access accounts, and how accounts are billed when no actual read is available.

Scope of Survey

The utility companies were selected based on the following criteria:

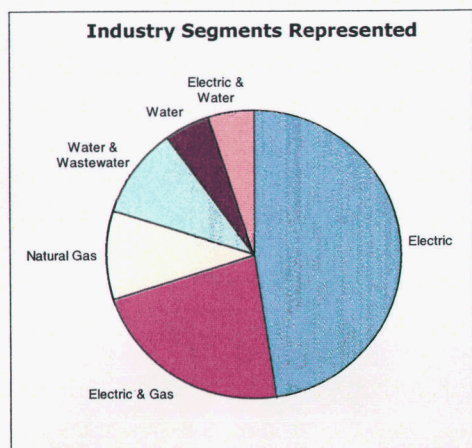
- Geographically diverse
- Differing customer information systems
- Good industry reputations
- Mix of urban, suburban, rural accounts
- Known focus on difficult access accounts

Including 12 specifically targeted companies, 39 utilities participated in our research. Nearly all companies participated in detailed telephone interviews of meter reading and billing personnel to examine meter reading practices, no-access resolution approaches, and billing estimation procedures. Additionally, participants completed on-line questionnaires.

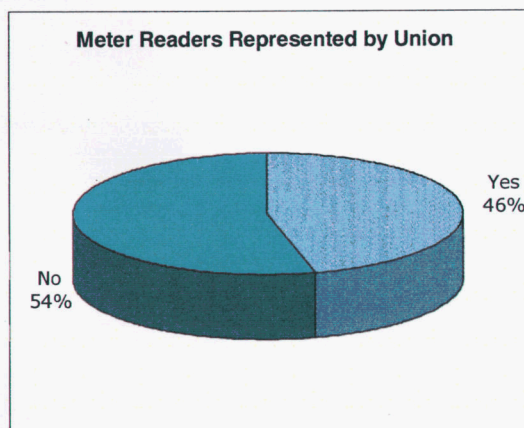
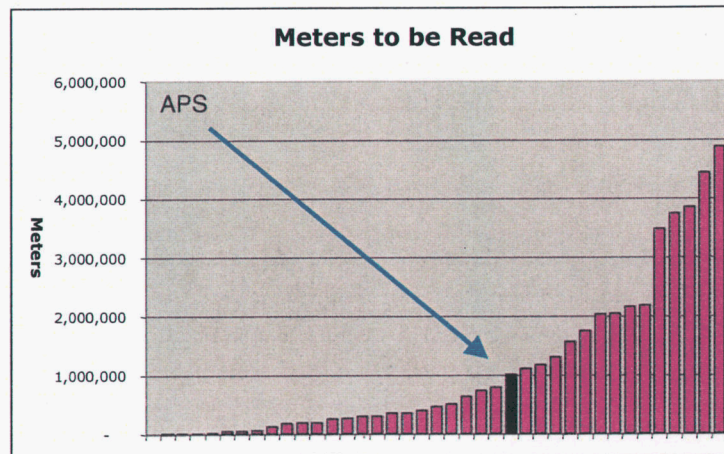
The survey included participants from all four corners of the US and in between. The number of meters read ranged from 4,500 to 4.9 million. Participants represented diverse service territories with an average meter density of 453 meters per square mile (high of 6,350 and low of 3 meters per square mile). Participating utilities also represent several industry segments -- electric service, natural gas service, water service, and wastewater service, with some providing more than one of these services. The participants included investor-owned, cooperative, government, and

municipal utilities. More than half of participants were investor-owned electric utilities.

While the majority of study participants were from the United States, we did have several utilities from Canada and Australia.



Participants averaged 1.1 million meters to be read, roughly the same as APS.



Nearly half of participants have meter readers who are represented by a bargaining unit. APS' meter readers are represented by a bargaining unit.

Two surveys were used to gather information on two functional areas—Meter Reading and Billing. Specifically, we asked companies to tell us about their methods to secure a meter reading in situations of difficult or no access. We also asked companies basic information to better understand the management approach and philosophies of the Meter Reading department.

On billing, we asked companies to tell us how they deal with a “no read” account. Specifically the steps that are taken to communicate with the customer and the basic formulae used to estimate usage.

We contacted the companies by phone or email to identify the appropriate person in each area to respond to the questionnaire. A brief phone interview was conducted and/or participants completed an online survey form.

Study Objectives

The main objective of the study was to evaluate the various tactics and strategies used today to read customer meters and to bill estimated demand and energy use. Secondary objectives included understanding:

- The range of performance by company and by industry segment;
- How utilities are using technology to reduce costs and improve customer satisfaction;
- Other effective process improvement or cost-reduction techniques;

- How utilities measure individual, team, and center-level performance and encourage high productivity and performance;
- The role of meter reading training and its impact on performance.

Participants were asked to share management tactics and strategies, as well as identify any improvement in performance. The study also asked utilities to include considerations, successes, and plans moving forward.

Study Findings

Meter reading is still one of the more labor-intensive utility activities. While the use of automated meter reading technologies (AMR) is increasing, most utilities are reading the majority of their meters manually. Our panel reported an overall AMR implementation rate of 8.3 percent. The remaining 91.7 meters are read manually, usually on a monthly basis.

With all the changes in the utility industry and the economy, most utilities have been forced to reduce operating costs. At the same time, companies are being asked by regulators, customers, members, and shareholders to increase customer service and satisfaction. Essentially to “do more with less”—a daunting challenge for any organization.

The Meter Reading organization is effectively the cash register of the utility. Utilities must measure and bill energy or water use monthly (in most cases) in order to bill customers and facilitate the revenue collection process. Meter reading is the usage collection process that makes billing possible. Errors in meter reading result in billing errors or unbilled accounts that ultimately result in reduced collections and in higher operating costs. In addition, skipped meter readings result in estimated bills or no-bills. Accordingly, utilities have worked diligently to improve their meter reading processes and APS is no exception.

For many companies, the meter reader is an entry-level job, a planned stepping-stone into the company. And as such, meter reading departments can incur high turnover, thereby increasing the costs incurred to hire and train effective and efficient meter readers, and ultimately, increasing the cost to read a meter.

Clearly the meter reading organization is evolving with the introduction of automation. The diversity of metering and AMR equipment, complexity of accounts and billing, the challenges of service territory, and needs of different customer groups dictate different solutions for different companies. Regardless of the implementation rate, the transition from manual to automation is challenging from a technology and people perspective. Routes must be consolidated and optimized,

employee roles and responsibilities change with changing priorities, performance measurement metrics must shift to accommodate the mix of automation and manual effort, processes and systems change ... it's a challenging time for any organization. Even after automation, metering devices must be visited on occasion for testing and other reasons.

In this transition to automation and the quest for reduced operating expenses, most utilities are focusing on three approaches to meter reading improvement:

- Reducing costs of manual reads through contract negotiations, rerouting, more sophisticated hand-held equipment and meters, productivity improvement, and lowering overhead; many have maxed out these options; Some have reduced costs to a point that makes it difficult to justify AMR, for residential accounts.
- Contract meter reading to reduce overhead, tackle seasonal peaks, and as a strategy to transition to automated meter reading.
- Automated meter reading – some large-scale implementation as well as several strategies to pinpoint “high read cost” meters, unsafe meter locations, and high-turnover premises. Some companies have automated “key accounts” and commercial

accounts to accommodate real-time pricing and/or prepare for the competitive market.

The promise of automation, implementing AMR, remains the top plan for the future, whether they are proposing a partial or complete implementation, for our utility panel. APS is presently testing two AMR systems to determine the effectiveness and reliability of available meters and related software. Both systems appear to have the potential to offer significant benefits to APS if various technical and operating shortcomings, which may impede the widespread deployment of AMR, can be resolved.

Benchmarking performance is an effective technique to understand meter reading performance and to identify improvement opportunities. APS has consistently participated in benchmarking programs to compare its meter reading performance to its peers, to keep an eye on the industry, and to identify best practices and other improvement opportunities.

Meter Reading & Meter Access

- *Meter access is a continual challenge for all utilities. Customers, terrain, and weather impact accessibility of meters. Meters once routinely accessible can be rendered inaccessible for reasons, such as home additions or modifications, dogs, fences, locked*

gates, lock changes, landscaping. Weather and natural disasters also impact access, temporarily and permanently. Utilities are constantly challenged to resolve access issues to obtain a reading or perform service-related work at the premise. As long as customers flow in and out of the service territory and service is measured through a premise-based meter, utilities will be challenged to access each and every meter.

- *"No Access" approaches vary depending upon the level of emphasis, cost, and is closely tied to regulatory requirements.* Most companies attempt to resolve no access using the lowest-cost approaches—picking up skips later in the day, leaving a door hanger, printing a message on the bill, sending letters, and making calls. APS uses all of these approaches. Most companies have defined tolerances in their billing system that permit the system to estimate usage up to a point, and APS is no exception. When that point is reached, some utilities diligently pursue higher-cost no-access approach, such as making a field appointment or special trip to attempt a read, begin AMR installation, if viable, install company locks, relocate the meter, at customer expense, or terminate service. Most, however, continue to estimate usage for many months, even years, while

customers continue paying the bills. The approaches and timing of actions vary from company to company.

- *Performance metrics encourage diligence in obtaining a reading—hold the Meter Readers accountable for getting a read.* Many utilities participating in this study indicated that they held meter readers accountable for obtaining a read. In fact, most emphasized the importance of their role and how they would be held accountable. Measurements typically are put in place to gauge both individual and group performance. Incentives and awards are designed to compliment the measurement framework and encourage superior performance. The companies reported providing employees with a clear idea of job expectations and performance. Those companies also reported success in improving accuracy and increasing route completion rate. APS has also instituted a comprehensive meter reading evaluation and monitoring process that is relied on in the management of the meter reading process. APS continually evaluates both individual meter reader performance and group performance.

- *customer communications can be effective in resolving no access, alerting customers to estimated usage, as well as improving customer satisfaction.* Several high performing companies provide customer communications to remind them of the scheduled read date, ask them to open gates, tie-up dogs, or what ever is necessary to gain access. One company uses the same personnel to call customers to alert them to an estimated bill, and to request access, stating that the proactive communications is very satisfying to customers. APS uses several of these approaches.
- *AMR is being strategically deployed for high-read-cost, unsafe, inaccessible, and/or high turnover premises.* Half of our panel is using AMR or a similar technology to remotely read meters in difficult access locations. While a few utilities have or are in the process of implementing a company-wide AMR program, most indicated taking a strategic approach at cost reduction through AMR. The most popular plan for the future is AMR. To date, however, AMR has not been available for residential demand meter applications required by APS. And it is still difficult to obtain for 3 phase service.

- *Nearly all participants' demand meters are assigned to commercial establishments, making access a non-issue.* Participants reported that all or nearly all demand rate customers were commercial establishments. Even those with demand meters installed at a residence were not billing the customers on the demand rate.

Since virtually all demand billed and metered customers are larger commercial, utilities usually have little difficulty obtaining a reading and resetting the demand as long as the reading can be done during operating hours of the business. As a result, our participants rarely estimate customers billed on a demand rate, usually only in situations of a meter failure or a weather problem. Only one company in our panel installed recorders on all demand meters, primarily for load profile purposes. In the event a reading is missed, the company can access demand history from the recorder. While this is cost effective for a system with few demand meters, it would not be practical for a company, such as APS, with a large number of demand meters on smaller commercial customers.

- *Companies, including APS, encourage high performance through incentives and rewards -* The "best performers" identified in this study encourage excellence through incentive

programs and/or informal or formal reward programs. Programs varied from bonus pay, special recognition, gift certificates, "bucks" redeemable at the company store, steak dinners, and other non-cash awards.

- *APS has an above average read rate.* APS reads on average 98.99% of its meters. This is above the panel average of 98.2%. Read rates for participants ranged from 86% to 99.9%.
- *APS has an above average accuracy rate.* APS reads on average 99.97% of its meters accurately, without error (about 28 errors per 100,000 meters read). This is above the panel average of 99.8% (about 222 errors per 100,000 meter read). Error rates for participants ranged from 2 to 1,800 errors per 100,000 meters read.
- *APS has fewer inaccessible meters.* APS reported approximately 1% of its meters as inaccessible. This is below the electric industry panel average of 1.1% inaccessible meters.
- *APS meter readers, on average, have more read experience than panel average.* APS reported an average length of service for meter readers of 8 years. This is slightly higher than the panel average of 7.5 years.

- *APS experiences less turnover in meter reader personnel than panel average. APS reported an average annual turnover of 10 percent, significantly below the panel average of 20 percent.*

Billing & Estimation

- *There is no apparent standard industry approach to estimating kWh usage. There is no apparent standard among our participant group for estimating kWh usage. While more than two-thirds reported the use of customer history, there is a wide variation in the exact factors used for the estimation. Companies based estimates on daily averages of prior customer usage for the: previous month, same season, same month last year, previous month and previous year, last year surrounding 3 months, last three months...The approaches were different from company to company and varied depending upon the availability of customer usage history.*
- *Like the majority of participants, APS bases its kWh estimates on the customer's history, when applicable. APS uses a daily average for the same season to estimate kWh usage. If this is not available, or is inapplicable (e.g., wrong season), prior month, same season or same month, prior year are used to estimate*

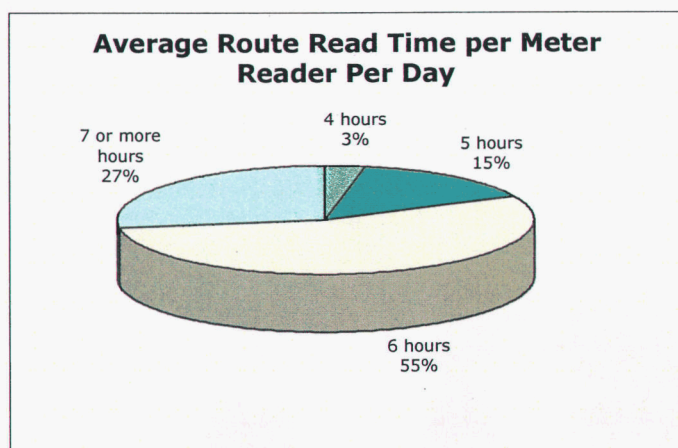
usage, or service address history, if individual customer history is insufficient.

- APS has the largest number of demand-rate residential customers in our panel and of any company that we are aware of in the U.S.
- Among our panel, only a couple of utilities reported having any residential demand customers and those that did had less than a dozen customers, most of which were churches (classified as residential for those utilities), none of which were an access issue. Residential accounts pose the greatest access challenge for any utility because, as we discussed earlier, it's usually much easier to gain access to larger commercial establishment.
- *Since most demand meters are for larger commercial accounts, companies make concerted efforts to obtain actual readings and avoid estimation.* Operating hours make demand meters more accessible to companies. As a result, few demand meters are access issues for utilities and very few demand-rate accounts are estimated. Our panel reported they were able to bill demand-rate customers on actual reads and had very few accessibility issues.

- *There is no apparent standard industry approach to estimating kW demand. Our panel rarely estimated kW demand, usually in situations of meter failure or malfunction. In those instances, several approaches were used: using last month's kW demand, rate class average kW demand, customer history-based kW demand, or individually calculated kW using load research. The approaches varied from company to company, and in those using customer history, the time-periods selected to average also varied.*

Study Observations

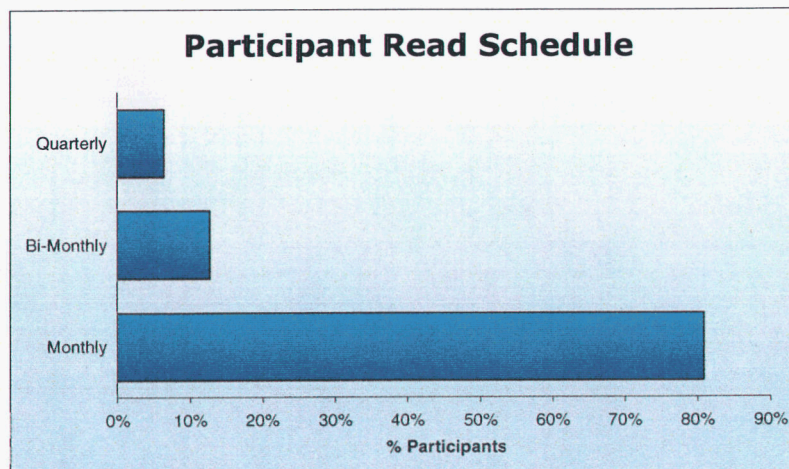
We received 39 valid survey responses from a diverse group of utilities. For the panel, route read time, per meter reader, averaged 5.8



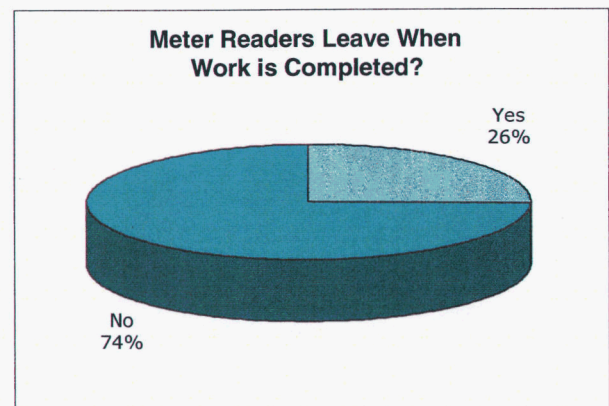
hours (number of hours reading meter route, excluding breaks, lunch, travel to and from route). More than half of participants (55 percent) reported an average route

read time of 6 hours per meter reader. Average route read time is heavily influenced by service territory, population density, and route design.

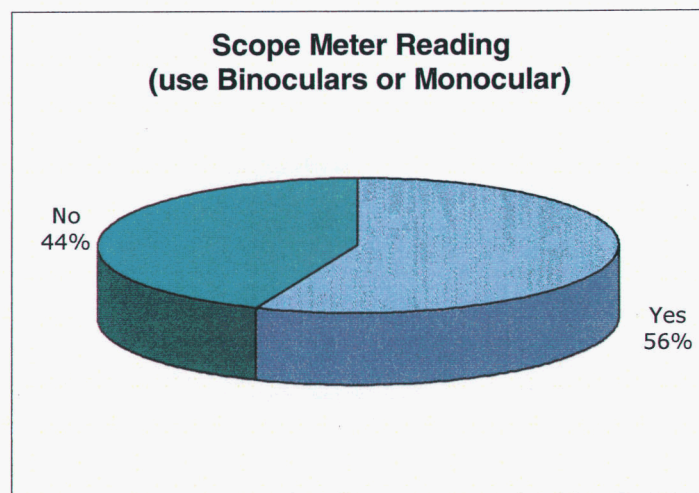
The majority of participating utilities read meters on a monthly basis (81 percent). Six utilities read on a bimonthly basis, and three utilities read quarterly.



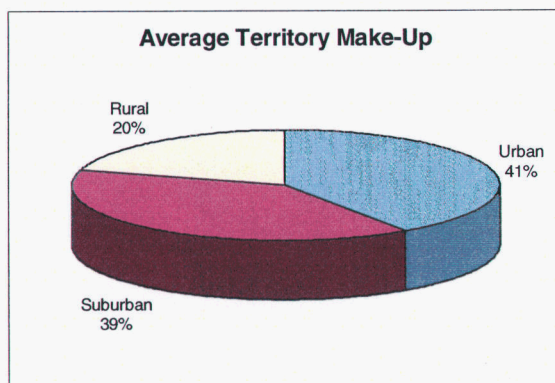
The majority of participating utilities do not let meter readers go home after completing the day's assignment (74 percent). APS does not let meter readers go home after completing the day's assignment.



The majority of participating utilities do scope meter readings (56 percent) when necessary, using a monocular or binoculars. APS meter readers do scope readings when able.

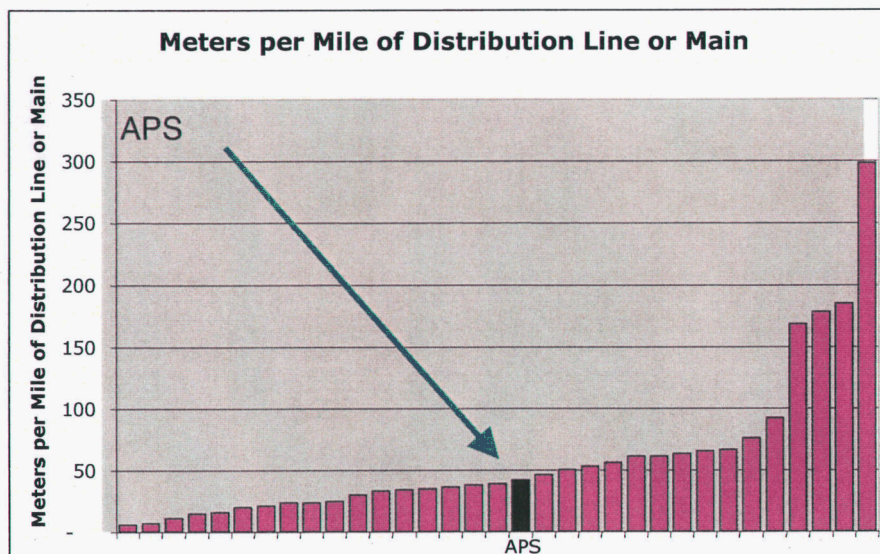


As a group, participating utilities average route composition is 42 percent Urban (>450 meters per route), 38 percent Suburban (> 250 < 450 meters per route) and 20 percent Rural (< 250 meters per route). Territories range from primarily Rural to completely Urban.



APS territory is primarily suburban (60 percent) and urban (40 percent) with relatively few rural routes. Nevertheless, as noted below, APS meter density is quite low.

Participants range from 35 square miles in service territory to 390,000, with an average of 22,675 square miles. In terms of meter density, the panel ranged from 3 meters per square mile to 6,349, with an average of 454 meters per square mile. The charts below detail meters per square mile and meters per mile of distribution line/main for the participant group. APS has approximately 24 meters per square mile of service territory and 43 meters per distribution line mile, as denoted in the charts below.



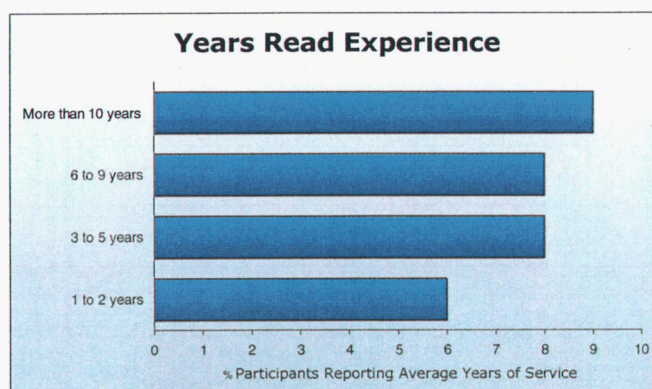
Participants range from 7 meters per distribution line or main mile to 299, with an average of 70. Natural gas utilities exhibit the largest percentage of both inaccessible meters and indoor meters, as demonstrated in the table of industry averages below.

	% Inaccessible Meters	% Indoor Meters
Electric	1.1%	0.7%
Natural Gas	4.1%	24.4%
Water	0.0%	2.7%
Combination	1.1%	12.4%
APS	1.0%	0.1%

Participants range from no indoor meters to a maximum of 87 percent indoor meters. As a group,

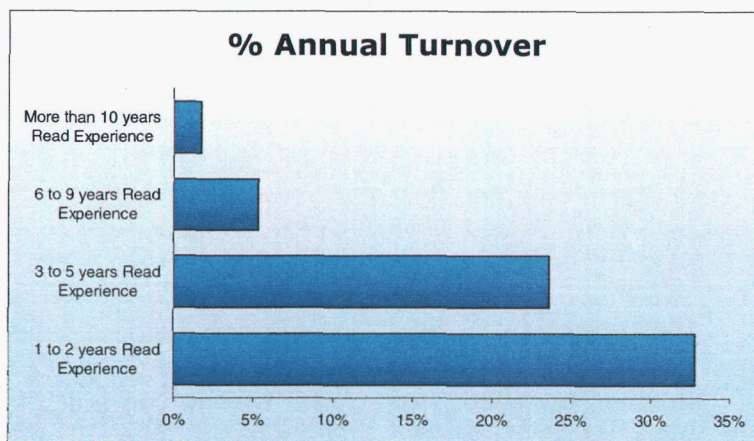
the panel averages a 5 percent indoor meter population. Averages for each industry segments are presented below. APS is well within the electric industry norm for percent inaccessible meters and percent indoor meters.

Average years of meter reading experience ranged from 1 to 20 years, with an average for the group of 7.5 years. APS meter readers average 8 years read experience.

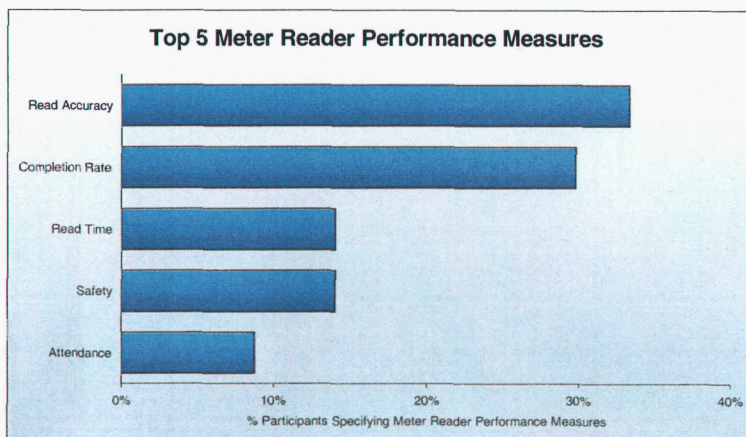


Reported turnover for the panel was indirectly proportional to the years of reading experience. Companies reporting high turnover reported short length of service while companies with minimal turnover reported

long length of service. The following chart details turnover percentages for the panel. As a group, annual turnover averaged 20 percent. APS averages 10 percent turnover, well below the average for the panel.



Participants were asked to identify the measures used to evaluate meter reader performance. Surprisingly, many companies reported no measures of meter reading performance.

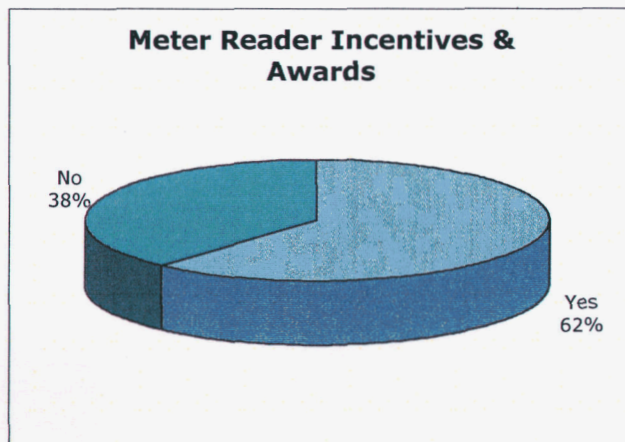


APS measures meter reading performance based on all of the factors noted on the chart above. At APS, meter readers are provided with written expectations for acceptable job performance and receive monthly performance progress reports. Pay reviews are conducted semi-annually. Additionally, individual and “shop” or group statistics are posted each month at APS in a “report card” for each meter reader.

For those reporting meter reading performance measures, the most popular was completion rate—the number of meters read per assigned route. The second most used measure was read accuracy or error rate. The next most popular measure focused on safety—accidents and injury. Read time was the fourth most used measure—actual time to read a route versus standard. Finally, attendance was the fifth most used measure.

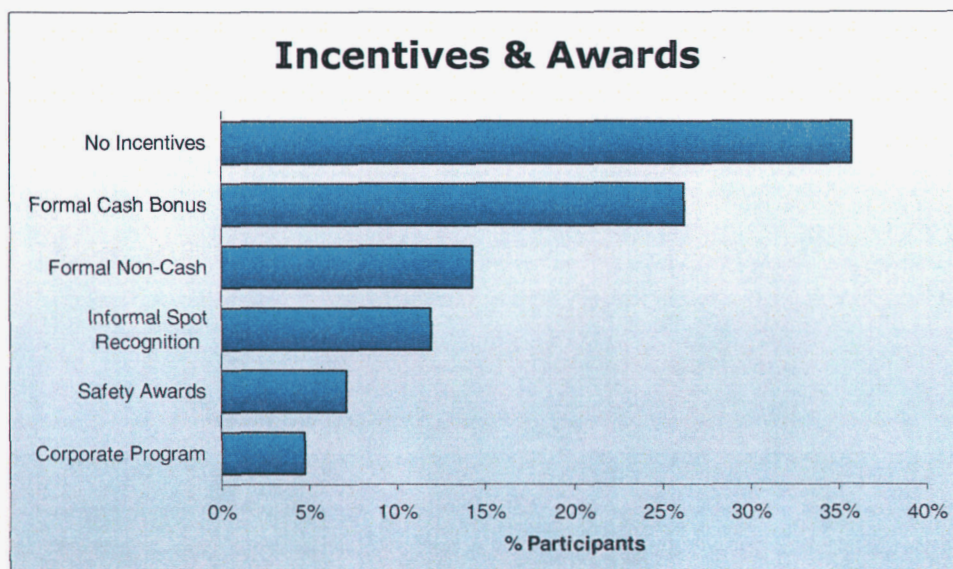
Other measures used included:

- Customer Relations
- Teamwork
- Complaints
- Amount of time worked daily
- Conduct
- Job Knowledge and Resource Management
- Communication
- Relationship with Supervisor



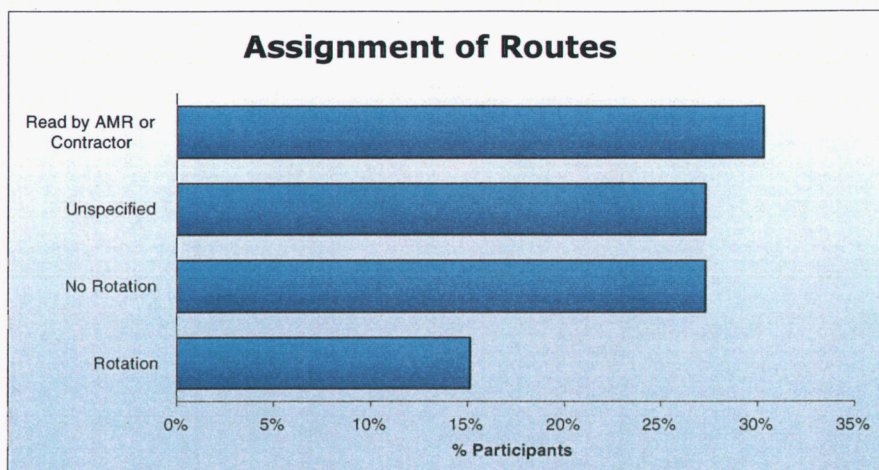
More than 60 percent of participants offer some kind of incentive or award program for meter readers. A formal "cash bonus" incentive is the most popular—meter readers have

the opportunity to earn bonuses based on superior performance. Non-cash incentives are the next popular—meter readers earn gift certificates, dinners, parking spots, trophies, and other non-cash items for superior performance. Other companies offer informal, on-the-spot recognition, usually through non-cash awards or through group recognition. Several companies use a combination of formal and informal awards to motivate performance.

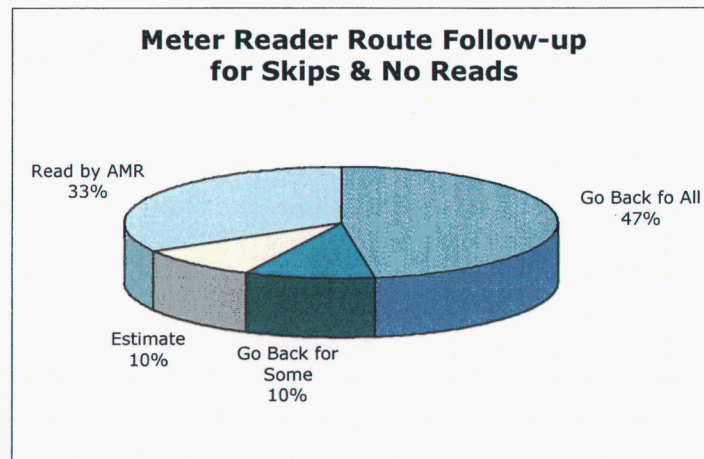


APS has an incentive system in place to encourage meter reader safety and performance. Using a "special pay" rate classification, meter readers earn incentive pay on a rolling 6 months of performance, based on safety-zero accidents, equipment-\$500 damage or greater=loss, error factor of .01, and 100% route completion. Awards and incentives include: special/senior pay based on performance, safety celebrations for shop safety records, "Living the Vision" awards, public acknowledgement of customer compliments, and individual recognition with movie passes, dinners, gift certificates.

Many utilities are using Automated Meter Reading (AMR) technology and/or contractors to read meters on a month-to-month basis. Those reading with company meter readers specifying route assignment, 27 percent do not rotate the assignment of routes among meter readers while 15 percent do rotate assignment of route. Those not rotating routes usually rely on a seniority-based bidding process for route assignment. Companies rotating routes reported rotating monthly, every 3rd month, every 4th month, and "round robin". APS meter readers exchange routes every 4th month with a "route swap partner."

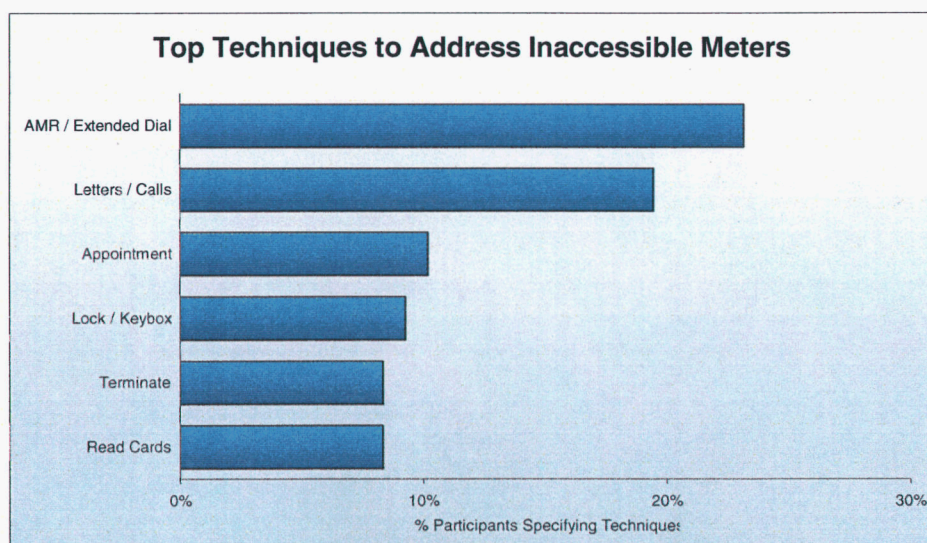


Companies have varying approaches to route completion. The majority of participants ask meter readers to go back and re-attempt readings for CGIs (can't get ins) at the end of the route or at the beginning of the next day's work. Others have supervisors, team leads, or foremen go back for skips sometime during the read-window. The approach can also vary within a company based on the season, weather, manpower availability, terrain, meter density, workload, and management style. The length of the read-window and schedule often determine how many days are available to pick-up any skips prior to cycle closing. A small percentage of companies only attempt to pick-up skips for commercial customers, usually a demand meter. Several companies make the determination based on the number of skips in a route, if they fall below a certain level, there is no attempt to pick-up the read, rather the account is estimated.



APS asks its meter readers to pick up any skips at the end of the route or the beginning of the next day. Thus, many “skips” do not actually result in issuance of estimated bill.

Addressing Inaccessible Meters



Our participants were asked to identify the steps that they take to address inaccessible meters. AMR is the most popular technique now

being employed to address small groups of chronically inaccessible meters.

The second most popular technique is to notify the customer by letter or phone and to continue to estimate the usage on the account. A number of companies report they will disconnect service after several months of continued "no access".

The least popular technique is to arrange a special time or appointment with the customer to obtain a reading. These appointments are usually a last resort before termination for "chronic" no access meters, after repeated efforts to read the meter with no success. Very few participants set appointments with customers for month-to-month cycle reads, and some charge customers to do so.

Companies also request customer keys and access codes to gain entry. Some will install a key box or company lock as a more long-term solution. One utility insists that the customer's doorknob be keyed to a company master key. Lastly, companies supply read cards to customers to self-read. However, for some participants, self-reads are considered estimates, not actual reads.

Most utilities use a number of these techniques to address "no access" and chronic "no access" meters, especially if no AMR has been implemented.

Other techniques cited in the survey:

- Leaving door hangers requesting access, sometimes serving as a read card too
- Printing messages on estimated bills requesting access
- Relocation of the meter at customer expense
- Reversing the routes every other month
- Calling customers before the scheduled read
- Saturday reads and special skip routes

Obviously, inside meters and inaccessible meters continue to challenge the effectiveness of utility meter reading departments in our panel. Inaccessible meters ranged from 1 percent to as high as 18 percent of total meters to be read each month. AMR has proven to be an effective technique, although costly, to eliminating many access problems and repeat trips to the meter. Several panel companies did, however, note that it is only a solution if you can gain access to the meter to install AMR. Other techniques, such as keys, letters, calls, and appointments are labor intensive, expensive and hit-or-miss. And none of these address other legitimate reasons why unfettered utility access is required.

APS has a clearly defined "no access" policy to address inaccessible meters. APS relies on many of the techniques described above to address access issues, including: door hangers, self-read cards, letters, calls, bill messages, and finally, termination. APS' "no access" policy dictates predefined steps to resolve "no reads" depending upon how long the meter has been inaccessible. The policy is described in the following paragraphs.

APS Meter Readers leave a door hanger, indicating the reason the meter could not be read, for all inaccessible meters. The door hanger provides the phone number for the call center and asks that the customer call APS. Each month APS is unable to access a meter, Meter Reading Administration confirms that the Meter Reader left a no-access door hanger; if no door hanger was left, Meter Reading Administration creates a Meter Access Request letter to be sent to the customer.

In the third consecutive month of no access, the APS customer's account is downloaded into an automated dialer, which leaves an automated voice message at the customer's home number that informs the customer of the access problem. If the customer contacts APS, an effort is made to resolve the access issue and the customer may provide

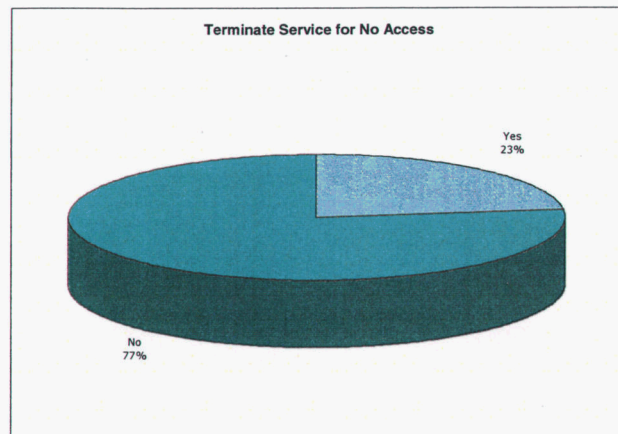
a read that will be used to determine the accuracy of the estimated read utilized in the billing.

APS Meter Reading Administration creates and mails the customer a postcard on the fourth consecutive month of no access. The postcard instructs the customer to contact the call center for access solutions.

By the fifth consecutive month of no access, the APS customer has received four door hangers or meter access letters, a dialer call, and a post card. In the fifth month, Meter Reading Administration sends an Active Accounts No Access letter that instructs the customer to contact the Call Center to obtain access solutions to avoid interruption of service. The letter informs the customer that APS will disconnect the customer's service, following the next month's read, if the meter is still inaccessible.

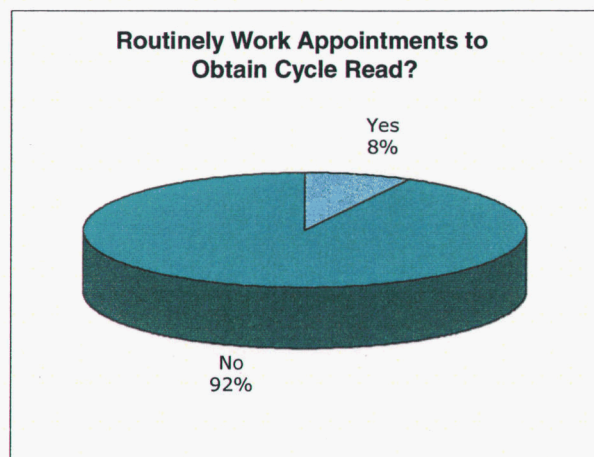
In the sixth consecutive month of no access, Meter Reading Administration reviews an account for any indication that the customer has called to resolve access. If none is found, Meter Reading Administration will attempt to call any listed daytime phone numbers. If the customer is unreachable by phone, a disconnect order is generated to Field Services personnel. The serviceman makes one more attempt to access the meter; if there is still no access to disconnect at the meter, the order is reassigned to OH or UG (Metro) or Field Service Supervisor (State).

Most utilities will not terminate service in a no access situation, preferring rather to continue billing estimated usage and continuing to attempt to gain an actual reading. Termination of service can be very disruptive and costly to customers, especially customers who are



content to continuing paying an estimated bill. APS' No Access policy, as described on the prior page, does stipulate termination after 6 months of no access; however, *very few accounts have been terminated for no access.*

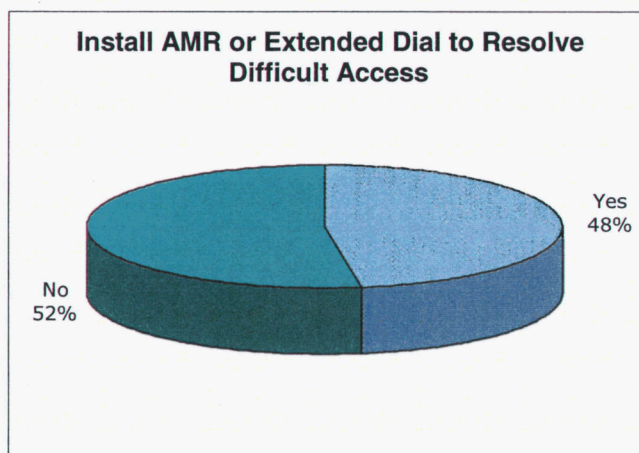
Very few utilities set routine appointments to obtain a routine cycle reading (only 8 percent of participants). Twenty-eight percent of participants reported having occasionally used appointments to resolve unusually difficult "no-access" situations, the majority are worked as field orders rather than by meter readers in-route, and usually only if there is no other way to resolve access. APS uses this approach for unique situations, such as at prisons and military bases.



APS does not use field appointments to gather readings for inaccessible meters, nor does it routinely work meter-reading appointments into its routes. APS, like most other utilities, has determined that the complexity and difficulty of managing scheduled appointments, and the increased costs APS would incur, would not warrant initiating a practice of scheduling appointments in light of APS' lower than industry average number of inaccessible meters and the probability that such a practice would not significantly or consistently reduce the number of meters it would have to estimate.

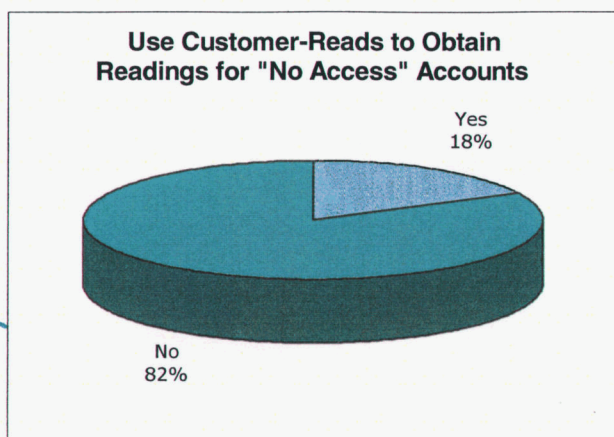
AMR is the most popular long-term solution to difficult access and unsafe access meters. Almost half of participants report using AMR or extended dial technology to remotely read inaccessible meters. This figure is growing as the deployment of AMR increases across the industry and as AMR technology becomes more viable for all meter types. While

AMR has in recent years become widely available for single-phase kWh and residential gas meters, the technology has been unavailable for the more complicated meters, such as demand, time-of-use, and multi-phase meters. The adoption of AMR will become more widespread for all meter types as the technology becomes available and is proven through field tests and pilot implementation.



APS is currently piloting AMR technology for single-phase kWh meters and will evaluate advanced technologies as they are developed.

A few companies provide self-read cards to customers. However, several companies reported that the "self-read" was still considered an estimate and did not count as an "actual read". In addition, others reported they found self-read cards to be unreliable, especially those left at the gate or property line.

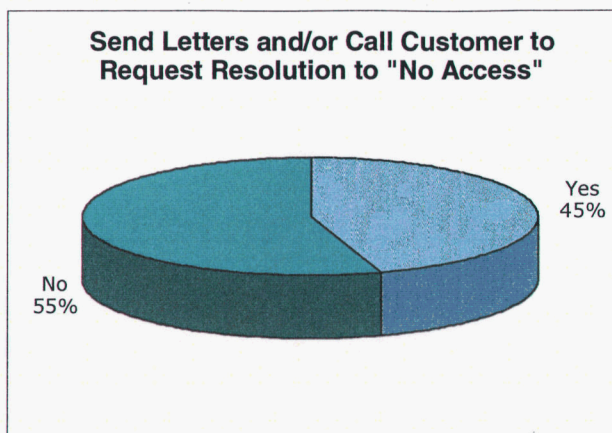


APS' Billing Department sends self-read cards to customers after 2 months of no access. Customers are instructed to provide access to the meter or send back a meter reading.

Many utilities will send a series of special letters and/or call the customer to request access to the meter and to arrange for a long-term solution. In many cases, the letters are automatically generated by the billing system after 1, 2, 3, or more consecutive estimates. This is consistent with APS practices.

A few companies print messages on estimated bills as well, alerting the customer to the estimated bill and asking for access to obtain a reading. APS routinely does this.

Bill messages are a low cost approach; letters and calls are more costly. None guarantee resolution. However all of these are less costly than the special field visit that may or may not gain access.



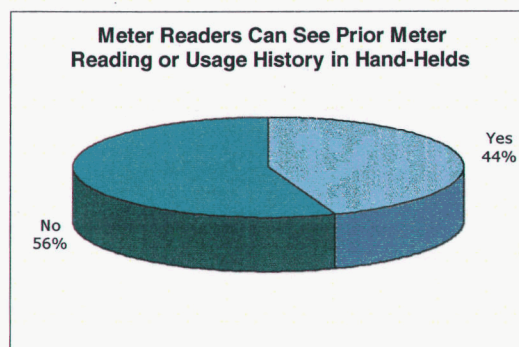
A small number of companies are proactively calling customers prior to the scheduled readings, to remind them to tie up dogs, unlock gates, or provide access to the meter. In a few instances, some companies issue cell phones to meter readers and code contact phone numbers with the meter information in the handhelds so meter readers can call customers during the route to arrange access. APS does provide to its customers general information regarding meter-reading dates through periodic mailings and information available on APS' web site.

Consistency in the read schedule and time of arrival at the meter also make it easier for customers to provide access—they know when the meter reader arrives each month and can get into a routine.

APS' policy clearly defines the steps taken to resolve no access, including sending a series of letters and post cards as well as calling the

customer to request access. APS also prints a message on the estimated bills asking customers to contact the company to resolve the billing issue.

Handhelds can be programmed to check for high and low readings and alert meter readers of possible errors or malfunctions in the meter. Some companies use the prior usage reading and/or same-time last year's reading as the parameters for a "high-low" error check. This

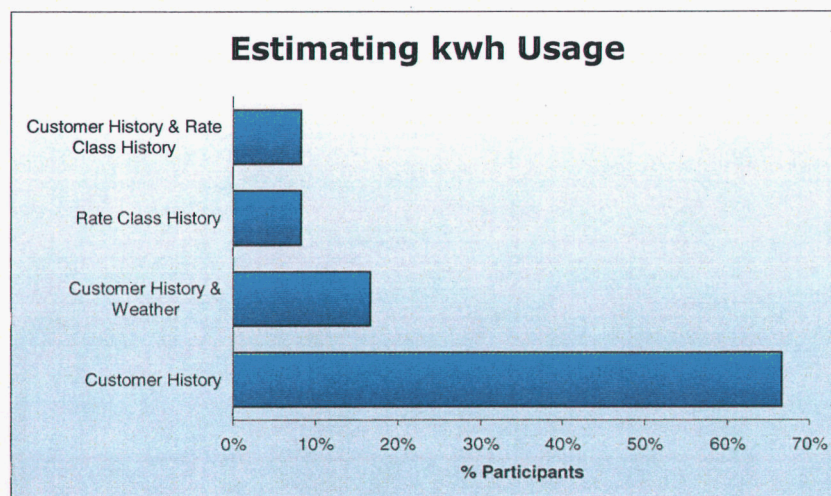


information can also be displayed for the meter reader or not, depending upon how the system has been programmed. Some companies allow meter readers to see the prior reading only after a reading has been entered, some before, some not at all. Some companies have removed prior readings from handhelds to discourage "curbing" of meters. However, others state that the information is valuable to meter readers and helps them do a better job; they keep it available as another accuracy check.

Estimating kWh Usage

Most participants estimate kWh usage based on customer history, although the time-period(s) used or averaged varied dramatically. Several companies have incorporated weather into their estimation algorithm, primarily by incorporating a "degree day" calculation. One

participant has incorporated weather through the averaging of customer history and rate class history. A small percentage relies only on rate class history, with no customer history.



There is no apparent standard among our participant group for estimating kWh usage. Even among those companies that prefer to base estimates on customer history, a wide variation of techniques are used, including:

- Previous month
- Same season
- Same month, last year
- Previous month and previous year
- Last month; previous 12 months; same month, last year

- Last month; last year, same month; last year, prior month before and after
- Last year, same 3 months; last 3 months, last month
- Last 3 months, same time last year
- Last month
- Last year, same month, prior month

Like the majority of participants, APS bases its kWh estimates on the customer's history, a daily average for the same season to estimate kWh usage. If this is not available, or applicable, prior month, same season or same month, prior year are used or service address history.

Estimating Demand

Participants reported that all or nearly all demand rate customers were commercial establishments. Even those with demand meters installed at a residence were not billing the customers on the demand rate.

Since virtually all demand billed and metered customers are larger commercial, utilities usually have little difficulty obtaining a reading and resetting the demand as long as the reading can be done during operating hours of the business. As a result, our participants rarely estimate

customers billed on a demand rate, usually only in situations of a meter failure or a weather problem.

When participants do estimate demand-rate customers, the kWh usage could be based on an actual read or an estimate, as described in the prior page. The following approaches are used by participants to estimate the kW demand:

- Use last month's kW demand
- Rate Class Table of kW demand
- Average customer kW demand history, similar to average used for kWh history
- Calculated as needed by load research

Again, since participants rarely estimate demand-rate customers, approaches are non-standard. All are manually estimated, and because the need is usually a meter failure or malfunction, the estimate is often calculated by load research employees instead of billing representatives.

APS has the largest number of demand-rate residential customers in our panel and of any company that we are aware of in the U.S. Among our panel, only a couple of utilities reported having any residential demand customers and those that did had less than a dozen customers, most of which were churches, none of which were an access issue.

Residential accounts pose the greatest access challenge for any utility, as we discussed earlier, it's much easier to gain access to a commercial establishment.

METER READING AND BILL ESTIMATION REGULATION

Accion Group conducted a survey of state regulatory authorities to compare their rules and regulations dealing with meter reading and bill estimation with the practices used in Arizona by APS. The survey targeted twelve states that had experience with deregulation. Our findings demonstrate that there are no standard practices or regulations used by regulators and that the procedures used by APS are generally consistent with the requirements used by other state regulatory agencies.

The survey was conducted in two phases. First, the web sites of each targeted regulatory authority were reviewed. This review was conducted to identify, where possible, the policy and practices the regulatory authority had enacted concerning meter reading and bill estimation. The web site review also identified what information was available to consumers about meter reading and bill estimation. The second phase of the survey was conducted by telephone, with regulatory personnel about the experience of the regulatory authority with meter reading and bill estimation. The telephone survey also explored the

frequency and nature of customer complaints regarding metering and billing issues.

As stated above, a total of twelve regulatory authorities were surveyed. Our sample was designed to include different regions of the country, with different demographic characteristics. We also surveyed a mixture of large and small states to include information on urban and rural customer territories. From experience we knew that the states with the greatest interest in meter reading are those that have experimented with deregulation. Accordingly, we targeted those states for review. From discussion with regulatory staffs, we confirmed that interest in meter reading increased during deregulation, and waned at other times.

From the information we were able to gather, we were unable to find any standard approach among the states for when meters must be read or for the use of estimated bills. While there is a preference for monthly meter reading, even this goal is not employed by all regulators.

As a general matter, meter reading and bill estimation are not issues given much consideration by regulatory authorities. Indeed, when telephoning regulatory authorities it was common for us to have difficulty finding a staff person with any knowledge, much less familiarity, with meter reading or bill estimation regulations. In some states, there are no formal regulations addressing bill estimation and meter reading

regulations. In an effort to identify the incidence of customer complaints, we began our inquiry at each regulatory authority with the staff person responsible for receiving customer complaints. Of the states we surveyed, none of the customer complaint caseworkers had any experience with bill estimation regulations or complaints. This required us to address all questions to staff members responsible for electric utility issues.

All of the regulatory authorities surveyed recognize that circumstances will prevent the reading of every meter every billing cycle. The most common reasons for permitting estimates are denied access and inclement weather, although there are obviously other reasons that can justify estimated reads.

The obligation to read meters ranges from "whenever possible"¹ and the necessity to "strive" to obtain regular monthly readings², to a requirement that meters be read at least once every twelve months.³ One state permits estimated bills for up to sixteen billing cycles or four years, whichever is shorter for seasonal, remote meters.⁴

There was no consistency on the number of months permitted between actual meter reads when access was denied, either through action of the customer or other circumstances. Similarly, there was not a

¹ Connecticut

² Maryland

³ Pennsylvania, Ohio

⁴ Maine

standard for the number of months without access before termination of service is allowed and most state regulations are silent on the point at which termination is permitted. The expectation of termination for non-access to meter ranges from four months⁵ to eight months⁶, with most state regulations on meter reading silent on the right to terminate.

As with meter related issues, the regulation of estimated bills is varied. At one end of the spectrum, one state has no limit on the number of months of estimated bills⁷. Another state limits estimated bills to one month, except where meter access is denied by the customer.⁸ The procedures for estimating bills vary among the states. Most state regulations are silent on how bills are to be estimated⁹. One state requires each electric utility to have an estimating procedure on file with the regulator, though the regulator does not approve a procedure.¹⁰ Our survey identified two states requiring estimated bills to be based on past usage in same month, prior year, with both recognizing the need to have an adjustment for differing weather conditions in the two periods.¹¹ Another recognized same month, prior year data as one factor to be considered in estimating a bill, along with temperature changes from prior

⁵ Illinois

⁶ New Jersey

⁷ North Carolina

⁸ Massachusetts,

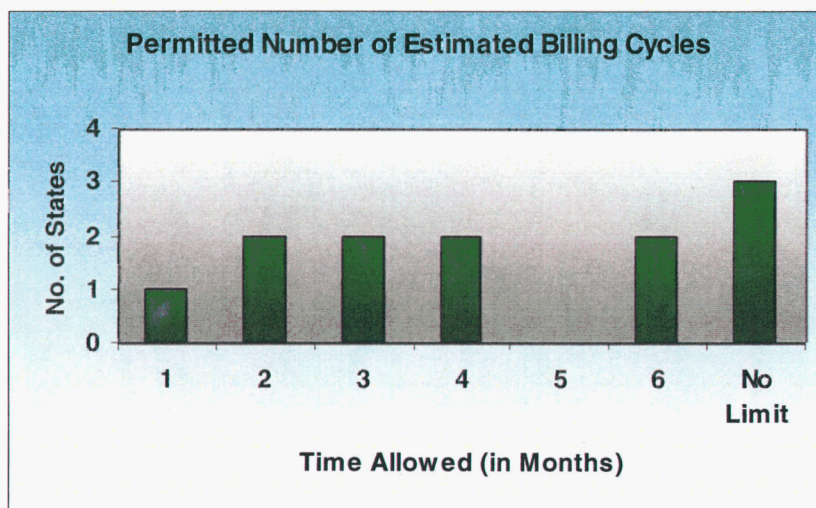
⁹ Such as Massachusetts, Maine, North Carolina, Ohio, Texas

¹⁰ Connecticut

¹¹ Maryland

month, usage in prior month, and seasonal load factors.¹² One state requires estimated bills to be based on historic usage and permits a weather adjustment.¹³

Although many different procedures are authorized in various jurisdictions, we know of no instances in which customers were allowed free electricity even when the authorized procedures were not followed.



Our survey specifically addressed the treatment of estimating residential demand meters. This is the one area of our survey where consistency ruled with the surveyed state regulators: none made provisions for estimating demand meters. Where time of use (or time of day, as they are known in some states) meters are in use, no special

¹² Nevada

¹³ Pennsylvania

provisions were identified in any state for estimating bills when the meters could not be read.

From our survey, it is apparent that there is little consistency among states when dealing with meter reading and bill estimation. While regulators expect meters to be read and bills rendered on a regular basis, all states recognize that circumstances will prevent some meters from being read. The methodology for bill estimation is, likewise, varied across the country. A majority of the states surveyed did not prescribe a detailed estimation methodology, and those that did address the issue provided for various adjustments including adjustments for weather variations and seasonal adjustments.

Regarding residential demand meters, none of the states regulated the methodology employed for estimating residential demand meters, for virtually none have them in use. From our discussions with regulatory staffs, it is clear that other state regulators do not face the dramatic challenges created by the climate variations of Arizona, or seek to use demand meters as a form of demand side management. Accordingly, the issue of estimating demand billings when meter readings are unavailable is unique to Arizona.

IMPACT OF BILL ESTIMATION PROCEDURES

Part of Accion Group's assignment was to evaluate the impact of APS' bill estimation procedures on its customers. To accomplish this, Accion Group personnel reviewed each of the various procedures APS applied to billings during the last six years. We also interviewed personnel in the billing department to confirm our interpretation of the documentation we reviewed.

The procedures we reviewed included the algorithms used in APS' CIS system and the factors applied to calculate estimated bills. During the years since APS initiated use of its current CIS system, the base computational methodologies used to produce estimated bills has not changed. Certain adjustments to factors used in those algorithms have, however, been adjusted to reflect identified changes in customer load factors and to correct the hours and days used to compute Time of Use estimates. A complete description of the methodology can be found in the Testimony of David Rumolo, filed in this case on November 23, 2004.

Accion Group also reviewed the study of the impacts of estimation methodologies conducted by APS, which was presented in the previously cited testimony of David Rumolo. We observed that the current method provided the most neutral customer impact, an annual underestimation on estimated bills of approximately \$432,000, resulting in a net under-

billing to customers as a group whose meters are inaccessible, fail, or are otherwise not read.

To confirm the APS study, Accion Group designed a second study that utilized a universe of actual meter reads covering the period September 1999 through August 2004. Statistically significant samples of actual bills for each rate code were randomly selected and estimates for each of those actual reads were prepared using the estimation procedure being utilized by APS at the time the actual bill was rendered. Under this second study, the only constraint on selection of a bill was that an actual read had been recorded. A total of 956 bills were selected to be estimated. Both kWh and kW estimates were computed using the formula in use at the time the original bill was prepared and each account was then "rebilled" based on rates then in effect.

We anticipated that the accuracy of the estimates (the percent deviation from the actual meter reads) would be normally distributed if the APS methodology was appropriate. A normal distribution would tend to show that most estimates approximated the actual reads with about 50% of all estimates that were not equal to the actual being higher than the actual and 50% being lower.

As Chart 1 demonstrates, we observed that estimated kWh as a percent of actual followed a statistically normal distribution with

approximately 48% of all estimates being less than actual and approximately 65% of all estimates equal to or less than 110% of actual. In fact, 45.8% of all estimates were within 10% of actual meter reads. Chart 2 shows that APS' methods for estimating KW however, demonstrates a marked tendency to underestimate demand. Nearly 80% of all samples calculated were equal to or less than 100% of actual demand. In reality, this estimation of demand and resultant under-collection of demand charges was further exacerbated when APS began to correct individual over-estimates of demand (as determined by a subsequent actual read) in 2003. Moreover, unlike variances between actual and estimated kWh, the net systematic underestimate of demand is not "self-correcting."

As noted above, we then had APS bill each estimate to determine the impact these estimates would have had. By rate code , we found the following average over and under billing impacts were computed.

Results of Accion Analysis

Rate Code	Average Actual Bill ¹ \$	Average Estimated Bill ² \$	% Over ³	% Under ³
E-12	73.57	68.63	46	54
E-10	72.84	74.10	53	44
EC-1*	144.84	134.20	33	67
ET-1	131.11	126.43	51	48
ECT-1R*	153.90	128.23	19	81
E-32*	571.16	545.00	40	59

*Demand Rates

We found that over 58% of the estimates computed resulted in a hypothetical under billing. By Rate Code we found that APS' approaches resulted in average estimates ranging from a 1.7% over estimate for Rate Code E-10 (which would self-correct in succeeding months) to a 16.7% average under billing for Rate Code ECT-1R. In total, our sample of 956 bills underestimated bills by \$12,417.49, or an average of \$12.99 per bill. We next compared our results to the results of the study conducted by APS and found them to be generally consistent.

Based on our findings, we have concluded that APS' estimation methodology is conservative and serves the best interests of those of the Company's customers whose bills are based on estimated reads. As a group, those customers are not harmed. Furthermore, APS' periodic

¹ A total of 956 bills were sampled.

² Bills were estimated using APS methodology in effect at the time actual bill was prepared.

³ Percentages may not total to 100%, reflecting estimates equal to actuals.

refinements of the factors used to calculate the estimates have, over time, reduced but not eliminated underbilling. We believe APS' use of historic seasonal average usage and class load factors has enabled APS to develop estimates that are fair and reflect the volatility of usage and demand that APS experiences as a result of Arizona weather patterns and customer requirements.

Chart 1: Total kWh Estimation as a Percent of Actual

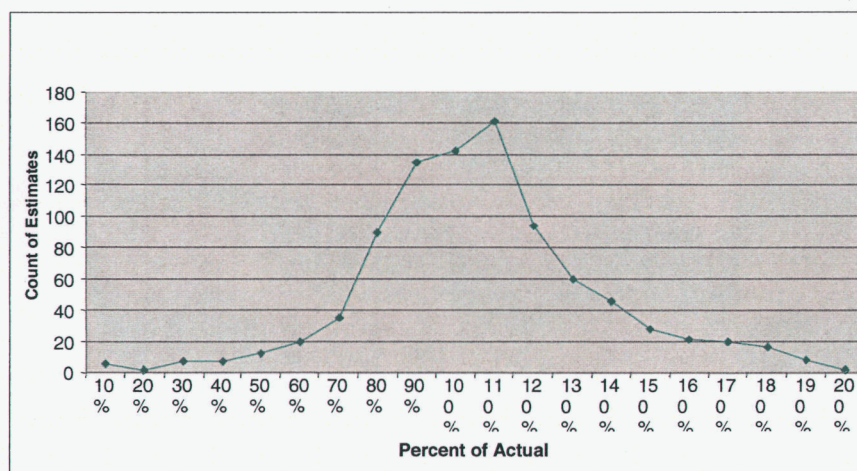
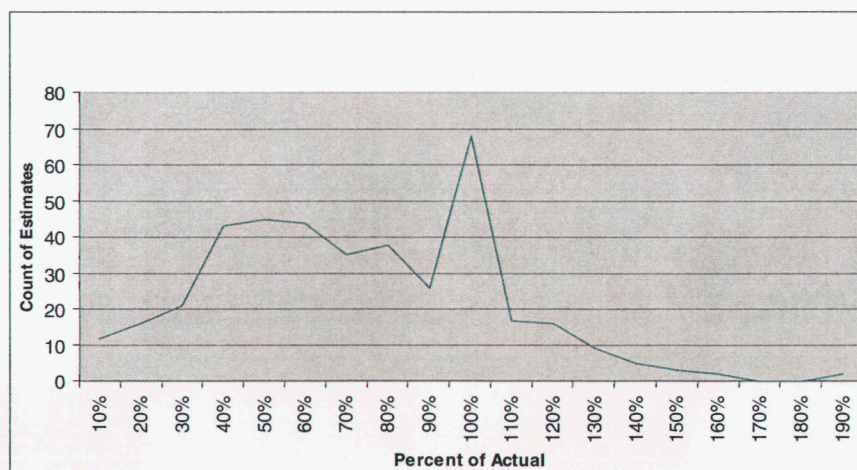


Chart 2: kW Estimation as a Percent of Actual



REVIEW OF STAFF CONSULTANT'S REPORT

On December 28, 2004, the *"Staff Inquiry into the Usage Estimation, Meter Reading, and Billing Practices of Arizona Public Service"* (BWG Report) was provided to the parties to this docket. The BWG Report makes 15 recommendations and discusses the claims of the Avis Read Complaint filed on September 9, 2004. Some of the recommendations address problems that do not exist at this time and many of the findings in the Report significantly distort the facts relied on to support them. In total, the BWG Report suggests that APS' practices may "harm" customers and that the potential "harm" may be of a significant magnitude. Contrary to that assertion, we found that APS' practices have, over time, benefited its customers.

The BWG Report tends to distort the significance of past anomalies and creates a false impression of APS practices. In other cases, the BWG Report appears to be based on misinterpreted or incomplete information.

The 15 recommendations are based on findings in the BWG Report. When the findings are read, it is clear that in many instances the Staff Consultants found no fault with APS' practices. While the BWG Report findings identify APS employees taking prompt, corrective action when problems became apparent, the findings rarely identify an endemic problem that even potentially could cause harm to APS' customers.

Only about 1.2 percent of the APS bills rendered in 2004 and only 0.9% of bills in the Phoenix Metro region were estimated, of which few were on residential demand metered rates. Therefore, contrary to the implication in the BWG Report that APS practices "harm" customers, the overwhelming likelihood is that APS customers are unaffected by the meter estimation processes, because they make their meters available to the meter readers and receive regular bills. Similarly, the tiny minority that did receive an estimated bill suffered no harm in the aggregate and may have in fact benefited. Even BWG recognized that customers on a standard rate, without demand charges, are not harmed by an estimated bill because their actual usage will be known once an actual meter read is obtained and any estimation "error" (whether an over- or under-estimation) will be corrected automatically. Accordingly, the number of customers who could potentially be affected by an inaccurate estimate is limited to demand rate customers. Even the few customers who received estimated bills for demand charges are more likely to be under-billed rather than overcharged. Based on the analyses we performed and on our review of the study conducted by APS as presented by David Rumolo in his testimony filed November 23, 2004, we are confident that APS' estimation procedures result in a net under-billing to customers whose bills are estimated. In the aggregate, customers as a group are

not being charged any more than is permitted pursuant to APS' filed tariffs.

When the findings supporting the 15 recommendations are reviewed, many are already consistent with current APS practices. Others address problems resolved long ago. Some of the recommendations regard more recent APS improvements, and a few propose projects or practices already begun or under consideration by APS. In particular, the Staff Consultants recommend actions they apparently claim will benefit ratepayers, yet their findings regarding APS practices did not identify any value the proposed actions may create. Indeed, if required, the recommended studies and reports would prolong indefinitely this Docket, without identifying any benefit to customers or the public interest of such continued intense scrutiny of APS' metering and billing practices.

On the following pages we discuss several of the specific recommendations made by the Staff's Consultants and address the findings and facts purportedly supporting those recommendations.

Recommendation III-2 suggests that APS improve its internal reporting without identifying an internal APS need for the data to be reported. Indeed, we found that much of the data is already available and is used to manage the meter reading function. This recommendation fails to identify any reason why the information that is currently available

to APS Managers is inadequate or any harm the present APS reporting practices on this subject could cause customers. The collection of data and the filing of reports without an established need or benefit are unnecessary and costly.

Recommendation III-3 (compliance performance measures for reading within billing cycles) relies on the same findings in the BWG Report as Recommendation III-2. As with the prior Recommendation, the Staff Consultants fail to identify how the form of records maintained by APS up to 9 years ago have any bearing on what current practices are, or the accuracy of customer bills today and into the future. After a review of APS records, the BWG Report could not identify a problem with meter reading within a billing cycle, other than failure to read for no access or meter failure. It is apparent that APS performance in this area is appropriate and that those responsible for completing meter readings in a timely fashion are doing so. There is nothing in the BWG Report that supports creating a new reporting requirement for a phantom problem.

Recommendation III-4 (removing prior month readings from the Itron Hand Held Computer (HHC) relies on Finding III-10, which states "(we) did not find evidence that meter reading schedules are assigned in a manner that may compel meter readers to take short cuts ..." Report at III-10. The findings also acknowledged a "zero tolerance" policy should

any meter reader attempt to fake a meter reading. Significantly, the finding identifies only one instance of a meter reader being terminated for falsifying a read in 1995 and another in 2004 who confessed to "falsifying reads," although only after this transgression had been discovered by the supervisors. Also, the finding fails to note, as confirmed by our discussions with APS Witness McLeod, that the majority of the Itron HHCs have now been set to block access to this data, and the company intends to make this change to all HHCs used by its meter readers. Accordingly, if there ever was a problem, APS has already taken steps to avoid or eliminate it.

According to the BWG Report, Recommendation IV-3 which addresses the role of APS' internal auditors is supported by Finding IV-11 (Report at IV-13) which asserts "it has taken APS significant time and effort to align" the new CIS with business practices. The statement, while true, is incomplete and misleading. It fails to acknowledge that APS fully completed the implementation of its new CIS by 2000, and it further fails to acknowledge that virtually every utility that has installed a new CIS in the last decade has experienced unexpected difficulties. More significantly, the most recent date regarding any vestigial transitional difficulties is from December 2000 – over four years ago. (Report Finding IV-7 at IV-14). This Recommendation seems to be overreaching and may reflect the lack of understanding of the purpose of internal audits. The Recommendation

would have the Commission require APS devote internal audit resources to reviewing this area even if no ongoing material risk was identified. Moreover, to adopt every recommendation proffered in an internal practices audit whether or not deemed necessary by management would be imprudent. In effect, the Staff Consultants would have APS management cede their judgment and responsibilities to an auditor. While an auditor may offer worthwhile suggestions and valid observations, it is management's responsibility to make decisions and ensure that the company runs well. It would be wholly inappropriate for an audit report to be elevated to the level of controlling the Company.

Recommendation VI-1, supported by Finding VI-1, advocates sensitivity training for billing services representatives. As part of our review of APS practices, we sat with billing representatives while they reviewed estimated bills and determined how the bills were to be issued. We also reviewed training manuals and met with supervisors to review performance records, complaints and disciplinary records. We found no evidence of a lack of training or a lack of understanding of the significance of bills to customers. The Finding referenced as a reason for this sensitivity training recounts the steps taken to generate an estimated bill when there is partial or no meter read for the billing cycle. Finding VI-1 does not identify any shortcoming in the performance of billing

representatives, or suggest there has been any confusion on the part of customers.

Recommendation IV-2 addresses a billing practice APS changed in 2003. If adopted, it would require APS to review each estimated bill and subsequent actual bill rendered to every demand metered residential account it served during the period 1998 through 2003 to determine if the actual metered demand was less than estimated demand in each previously estimated month, to compute a credit for each such occurrence, to locate the customer affected, and to refund that credit. This would be a time-consuming, complex and costly exercise to benefit customers who failed to comply with APS' approved tariff terms and conditions regarding meter access and would simply add to an already net underbilling situation.

On that last point, it should be re-emphasized that we have tested APS' estimation methodology and found that it tended to underestimate customers' electric usage and that approximately 58% of all estimated bills were for less than actual usage. Also, about 80% of all demand estimates were for less than what was used. We also found that over roughly the same period, the average estimate was about \$13.00 **less** than the actual bills tested in our sample.

As noted above, it appears that Staff's Consultants may have made recommendations based on incomplete information about industry practices or a misinterpretation of the APS data available to them. Several recommendations propose requiring APS to prepare and submit periodic reports or to participate in ongoing research and to provide that information to the Commission - Recommendations III-1, III-6, III-7, and V-2. Among this group, it appears that Staff's Consultants have proposed that procedures be put in place to address a sporadic resource problem that occasionally existed at APS' smaller offices that APS has already addressed (Recommendation III-1), that APS pilot-test scheduling appointments with chronic no-access customers, a recommendation unsupported by any findings and a practice rarely used in the industry (Recommendation III-7), that APS test using an auto-dialer to communicate meter reading schedules with chronic no access customers in spite of the facts as found by Staff's Consultants that APS has comprehensive policies in place that provide that information to its customers (Recommendation III-6), and that APS continue to participate in benchmarking studies and report on those studies quarterly (Recommendation V-2) without any evidence to suggest that APS had any intention to stop benchmarking its performance against its peers or that such data would be available quarterly.

Recommendation III-8 which would have APS adopt a policy to ensure that meter-reading supervisors inspect no-access locations, while unsupported by any findings, would, if adopted, have no meaningful effect on APS' operating practices. According to our review, interviews with company personnel, and our accompanying meter readers in the field, APS already has practices in place to accomplish this goal. Recommendation V-1 implies that APS does not make adequate efforts to obtain meter readings at persistent no-access locations, an implication that is refuted by the Consultant's findings in Chapter III of its Report. Further, as noted earlier in our report, APS' estimated bills as a percent of total bills is less than the industry average even in spite of its heavy concentration of demand meters and the fact that it is only now beginning to implement recently available AMR technology.

Finally, the BWG Report recommends requiring APS to create a report every three months about the on-going AMR pilot project underway at APS (Recommendation III-5). This Recommendation, while understandable, should not be adopted as proposed. Quarterly reports would provide no meaningful or useful data from which conclusions should be drawn. AMR technology is currently being tested in the Metro region, which in 2004 had a 0.9% "no access" meter reading rate. The on-going performance of AMR in the Metro region, evolving technology and

associated cost, will in time produce a basis for the business decision of whether to install AMR meters throughout APS' service territory. Undoubtedly, APS will advise the ACC when sufficient data upon which to determine which, if any, AMR technology will add value to the system. Until then, quarterly reports would provide no valuable information.

In conclusion, our review of the BWG Report finds that the majority of the recommendations would address circumstances and concerns that have been previously corrected by APS. The remaining recommendations are either actions that could be taken, but would not provide customer value or improve APS practices, or are already under review and testing by APS. Accordingly, we believe the recommendations in the BWG Report should not be adopted and the Commission should find that APS meter reading and bill estimation practices are appropriate and not in need of additional scrutiny.